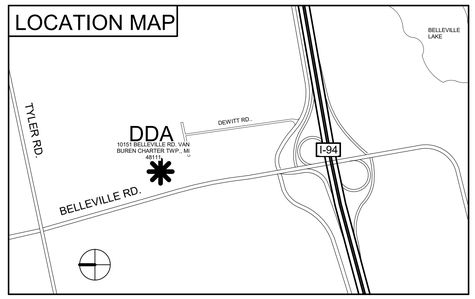
VAN BUREN TOWNSHIP

DOWNTOWN DEVELOPMENT AUTHORITY 2016 PLACEMAKING PROJECT

10151 BELLEVILLE ROAD, VAN BUREN CHARTER TOWNSHIP, MI 48111

ISSUED FOR: PER WCDPS
DATE: AUGUST 21, 2018
PROJECT NO.: 161675



SHEET INDEX

CIVIL ENGINEER:

ENVIRONMENTAL ENGINEERS
18620 WEST TEN MILE ROAD, SOUTHFIELD MI 48075, 248.424.9510

LANDSCAPE ARCHITECT:

PAT CONROY AND ASSOCIATES
P.O. BOX 542, LAKE ORION, MICHIGAN 48361-0542, 248.814.8082

ARCHITECT:

WAKELY ASSOCIATES, INC./ARCHITECTS
30500 VAN DYKE AVE., SUITE M-7, WARREN, MI 48093,
586.573.4100

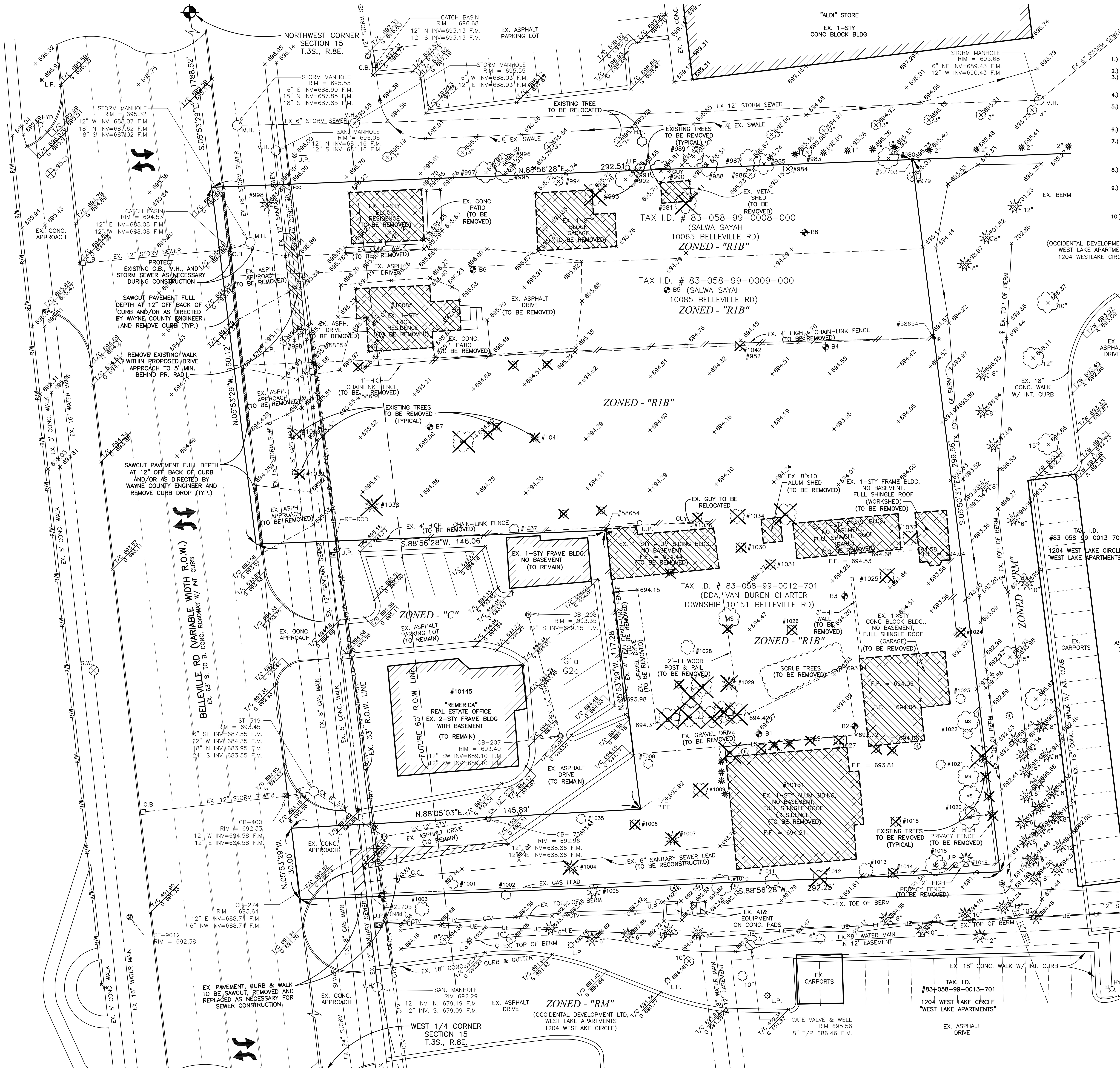
STRUCTURAL ENGINEER:

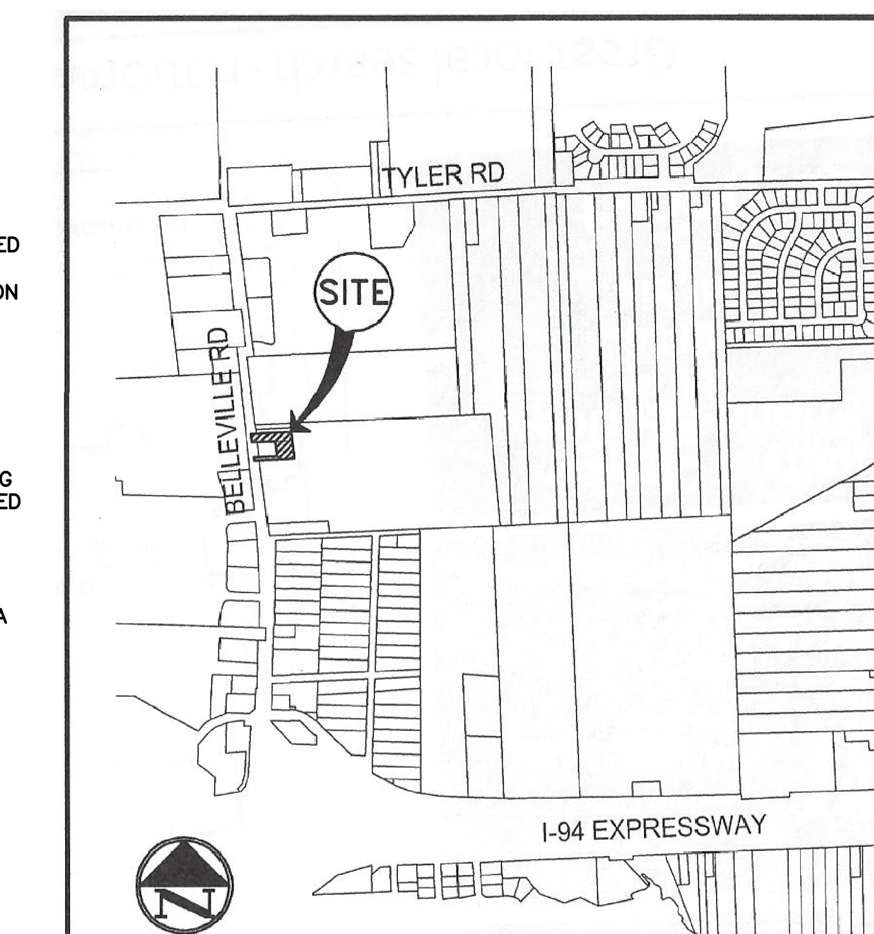
SNYDER AND STALEY ENGINEERING
3085 BAY ROAD, SUITE 6, SAGINAW, MI 48063, 989.797.1710

MEP ENGINEER:

STRATEGIC ENERGY SOLUTIONS, INC.
4000 WEST ELEVEN MILE ROAD, BERKLEY, MI 48072, 248.399.1900

Van Buren Township Downtown Development Authority 2016 Placemaking Project
10151 Belleville Rd. Van Buren Charter Twp. MI 48111, Issued for: PER WCDPS 08/21/18
Proj.: 161675





LOCATION MAP

NOT TO SCALE

NORTH

SCALE: 1"=20'

0 10 20 40

GENERAL NOTES

1.) ALL SIGNS SHALL CONFORM TO VAN BUREN TOWNSHIP SIGN REGULATIONS.
2.) NO OUTDOOR STORAGE IS PROPOSED FOR THIS SITE.
3.) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL VAN BUREN TOWNSHIP PERMITS AND ANY OTHER PERMITS REQUIRED FOR CONSTRUCTION.
4.) ANY HAZARDOUS MATERIALS USED, STORED OR PROCESSED ON SITE WILL BE TO ALL APPLICABLE REGULATIONS.
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7.) OWNER AGREES PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES AND SURFACES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED. PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION.
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10.) THE APPLICANT SHALL KEEP THE GATE BETWEEN THE REAL ESTATE OFFICE AND THE ADDITIONAL PARKING AREA FOR THE DDA BUILDING OPEN DURING BUSINESS HOURS, PUBLIC MEETINGS AND DDA EVENTS.

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES NOTES

A.) ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES.
B.) THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN ROAD RIGHTS-OF-WAY, PARKS, DRAIN EASEMENTS OR SANITARY SEWER UNDER THE JURISDICTION OF WAYNE COUNTY (07/01/93) REVISED (12/15/04).
C.) RESTORE ALL DISTURBED AREAS UNDER WAYNE COUNTY RIGHT-OF-WAY WITH 3" TOPSOIL AND CLASS "A" HYDROSEED. SLOPES STEEPER THAN 1:3 SHALL BE RESTORED BY PLACING SOD.
D.) MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE M.M.U.T.C.D.
E.) CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT MR. PAUL POLKOWSKI AT (734) 595-6504 EXTENSION 2009.
F.) CONTRACTOR SHALL OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DOE.
G.) REPLACE, RESTORE AND RELOCATE ALL TRAFFIC SIGNS THAT ARE AFFECTED BY THIS CONSTRUCTION AS DIRECTED BY THE COUNTY ENGINEER

BENCH MARKS

B.M.-1 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, 10' ± SOUTH OF SOUTHWEST CORNER OF SITE.
ELEVATION 694.18 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)

B.M.-2 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, ON NORTH LINE OF REMAX SITE.
ELEVATION 696.15 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)
(PER SURVEY PREPARED BY WADE TRIM GROUPS DATED 8/25/16)

CONSTRUCTION NOTES

1.) ALL SITE CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF VAN BUREN TOWNSHIP & WAYNE COUNTY.
2.) ALL CONSTRUCTION WITHIN BELLEVILLE ROAD R.O.W. SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES. W.C.D.P.S. PERMIT IS REQUIRED.
3.) ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ONSITE. A S.E.S.C. PERMIT IS REQUIRED FROM THE WAYNE COUNTY DEPT. OF THE ENVIRONMENT. ALL TOPSOIL WITHIN THE PROPOSED CONSTRUCTION AREA SHALL BE STRIPPED AND STOCKPILED PRIOR TO THE START OF ANY GRADING AND UTILITIES WORK. ANY SITE FILLING DONE DURING MASS GRADING SHALL UTILIZE CLEAN SOIL, FREE OF ANY VEGETATION OR ORGANIC MATERIALS. ALL FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST. ALL EXCAVATION UNDER OR WITHIN 6 FEET OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL. ALL DISTURBED AREAS WHICH ARE UNPAVED ARE TO BE STABILIZED WITH 4" TOPSOIL, SEED AND MULCH (OR SOD) AS SOON AS FINAL GRADING IS COMPLETE.
4.) ALL WATER MAIN AND SERVICE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP WATER MAIN DETAIL SHEETS AND SHALL HAVE 6 FOOT MINIMUM COVER. A MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
5.) ALL SANITARY SEWER AND LEAD CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP SANITARY SEWER DETAIL SHEET. A MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
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7.) THE PROPOSED GRADES SHOWN WITHIN PAVEMENT AREAS ARE FINISHED PAVEMENT GRADES. SEE CONCRETE CURB AND GUTTER DETAIL OR CONCRETE WALK WITH INTEGRAL CURB DETAIL WHERE APPLICABLE. THE PROPOSED ONSITE CONCRETE DRIVES & WALKS SHALL BE AS SHOWN ON THE PAVEMENT DETAILS ON SHEET C-5. THE PROPOSED ONSITE ASPHALT PAVING SHALL BE:
3-1/2" – M.D.O.T. No. 1100 BITUMINOUS MIX ON
6" – M.D.O.T. No. 21AA AGGREGATE BASE

LEGEND

Symbol	Description
× 694.00	EXISTING ELEVATION
+ 94.00	PROPOSED ELEVATION (ADD 600 FEET)
—694—	EXISTING CONTOUR
—94—	PROPOSED CONTOUR (ADD 600 FEET)
U.P.	UTILITY POLE
L.P.	LIGHT POLE
GUY	GUY WIRE
T.S.	TRAFFIC SIGN
W.S.O.	WATER SHUT-OFF
G.S.O.	GAS SHUT-OFF
P.M.	PARKING METER
T.C.	TRASH CAN
B.P.	BUMPER POST
A.M.	AMERITECH MARKER
A.P.	AMERITECH PEDESTAL
(hatch)	STRUCTURES TO BE DEMOLISHED
(X)	TREES TO BE REMOVED
B1	SOIL BORING LOCATION

SOIL EROSION & SEDIMENTATION CONTROL SEQUENCE

DATES:		
10/01/18 – 10/15/18	1.)	INSTALL TEMPORARY SILT FENCE AROUND PERIMETER OF CONSTRUCTION AREA. INSTALL TEMPORARY STONE TRACKING MAT AT PROPOSED SITE ACCESS LOCATION. REMOVE EXISTING BUILDINGS, PAVEMENT, TREES & UTILITIES AS SHOWN ON SITE DEMOLITION PLAN. STRIP TOPSOIL FROM CONSTRUCTION AREA AND STOCKPILE FOR REUSE IN AREA ENCLOSED BY SILT FENCE.
10/16/18 – 11/15/18	2.)	MASS GRADE SITE, BEGIN BUILDING CONSTRUCTION. CONTROL DUST FROM SITE AT ALL TIMES BY WATERING AS NECESSARY. REMOVE ANY DIRT WHICH IS TRACKED ONTO ADJACENT ROADWAYS IMMEDIATELY. INSPECT ALL TEMPORARY EROSION CONTROL MEASURES ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSES SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION.
11/16/18 – 12/31/18	3.)	INSTALL SITE UTILITIES INCLUDING UNDERGROUND DETENTION SYSTEM. PLACE TEMPORARY INLET FILTERS ON NEW DRAINAGE STRUCTURES AS SOON AS THEY ARE CONSTRUCTED.
01/01/19 – 05/31/19	4.)	FINE GRADE PAVEMENT AREAS AND INSTALL PAVEMENT.
06/01/19 – 06/30/19	5.)	FINISH GRADE ALL REMAINING UNPAVED AREAS. REDISTRIBUTE TOPSOIL. SEED, FERTILIZE & MULCH ALL REMAINING UNPAVED AREAS WITHIN FIVE (5) DAYS OF FINAL GRADING.
07/01/19 – 07/31/19	6.)	COMPLETE BUILDING CONSTRUCTION. CLEAN SITE PAVEMENT, STORM SEWERS AND DETENTION BASIN REMOVING ANY ACCUMULATED SEDIMENT AND DEBRIS. REMOVE TEMPORARY EROSION CONTROL MEASURES WHEN ALL AREAS ARE STABILIZED.

SOIL & SEDIMENTATION CONTROL MEASURES INSPECTION & MAINTENANCE SCHEDULE

ALL TEMPORARY EROSION CONTROL MEASURES SHOULD BE CHECKED ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSE SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION. EXAMPLES OF REQUIRED MAINTENANCE INCLUDE THE FOLLOWING:

INLET FILTERS – REMOVE AND REPLACE THE PEA GRAVEL MATERIAL PERIODICALLY SO AS NOT TO BECOME CLOGGED. ANY DAMAGED FILTERS SHALL BE REPLACED IMMEDIATELY.
SILT FENCE – SOIL ACCUMULATED BEHIND THE SILT FENCE SHOULD BE REMOVED AFTER REACHING A 6" HEIGHT. ANY AREAS WHERE THE SILT FENCE HAS BEEN UNDERCUT SHALL BE REINSTALLED WITH THE REQUIRED 6" MINIMUM ANCHOR TRENCH. ANY DAMAGED SILT FENCE SHALL BE REPLACED IMMEDIATELY.
TRACKING MAT – CRUSHED CONCRETE SHOULD BE ADDED TO THE TRACKING MATS AS THEY BECOME COVERED WITH MUD. ADJACENT ROADWAYS SHOULD BE CLEANED ON A DAILY BASIS AS NECESSARY TO REMOVE ANY DIRT WHICH MAY BE TRACKED ONTO THEM.
TOPSOIL, SEED, & MULCH – ALL GREENBELT AREAS SHOULD RECEIVE 4" TOPSOIL, SEED AND MULCH (OR HYDRO-SEED OR SOD) WITHIN FIVE (5) DAYS OF REACHING FINAL GRADE. ANY ERODED AREAS SHALL BE IMMEDIATELY REPAIRED BY REGRADING AND PLACING ADDITIONAL SEED & MULCH.

NOTE: PORTIONS OF EXISTING SITE BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN FROM SURVEY PREPARED BY WADE TRIM GROUPS, INC. DATED 8/25/16 AND PROVIDED BY CLIENT.

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39674
LICENSED PROFESSIONAL ENGINEER

811
Know what's below. Call before you dig.

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E-MAIL: enveng@ameritech.net
EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE EXISTING CONDITIONS & DEMOLITION PLAN

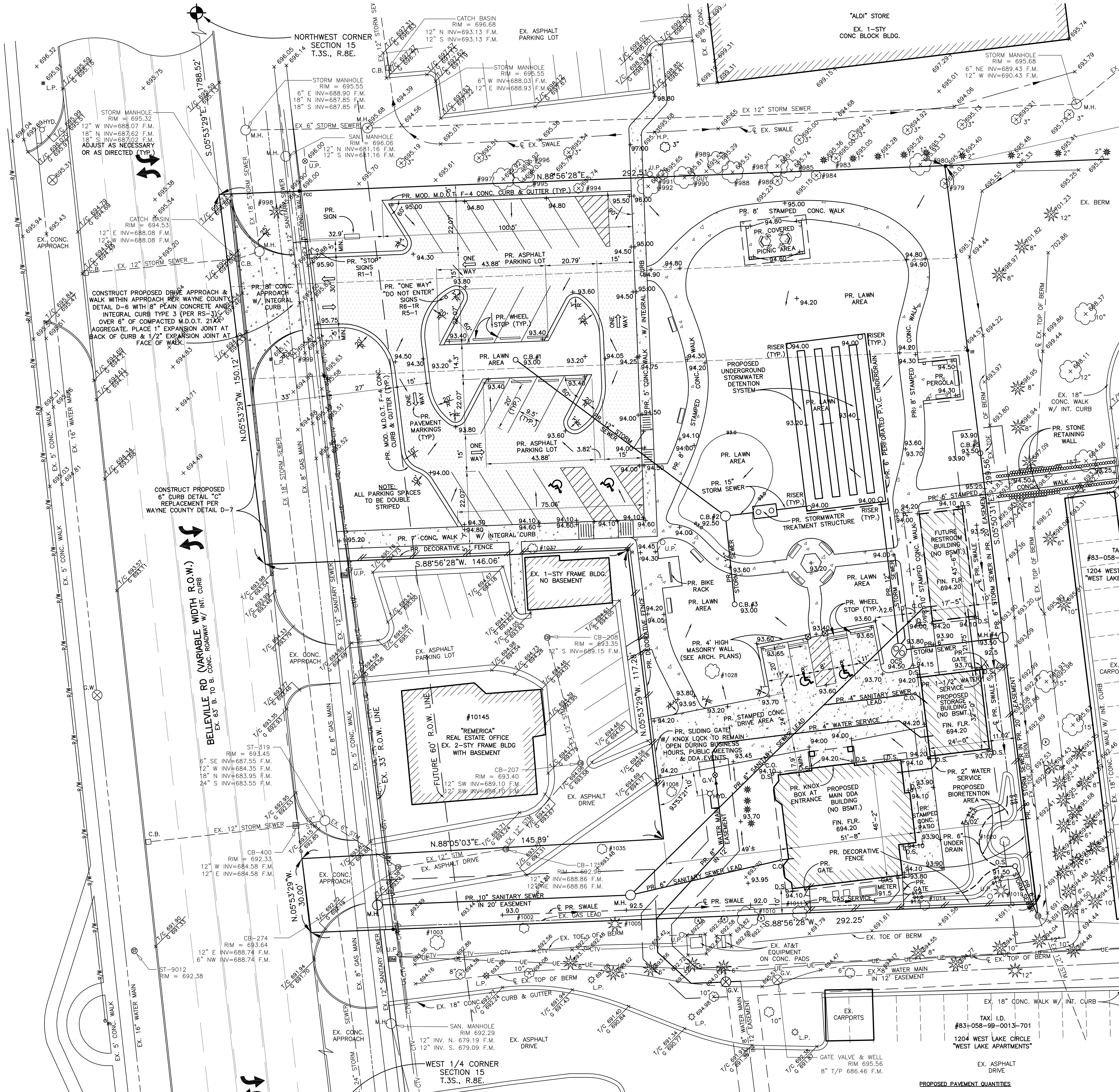
PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐
DRAWN BY:	RM
CHECKED BY:	PL

REVISIONS:
03/21/18 - CONSTRUCTION SET
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 08/25/17

SHEET NO.: C-1

JOB NO.: 161675



PROPOSED PAVEMENT QUANTITIES

11,011 S.F. – ASPHALT PARKING LOT PAVEMENT:
1-1/2" M.D.O.T. NO. 1100T BITUMINOUS MIX ON
2" M.D.O.T. NO. 1100L BITUMINOUS MIX ON
6" M.D.O.T. NO. 21AA AGGREGATE BASE
2,029 S.F. – 4" PLAIN CONCRETE WALK WITH INTEGRAL CURB ON 4" M.D.O.T. CL.II SAND BASE

3,731 S.F. – 8" NON-REINFORCED STAMPED CONCRETE DRIVE ON 6" M.D.O.T. NO. 21AA AGGREGATE BASE
51 L.F. – 6" INTEGRAL CURB REPLACEMENT
1,148 S.F. – 8" NON-REINFORCED CONCRETE APPROACH W/ INTEGRAL CURB ON 6" M.D.O.T. NO. 21AA AGGREGATE BASE
6,644 S.F. – 4" PLAIN STAMPED CONCRETE WALK/PATIO ON 4" M.D.O.T. CL. II SAND BASE
496 L.F. – MODIFIED M.D.O.T. F-4 CONCRETE CURB & GUTTER

PROPERTY DESCRIPTION

PART OF THE NORTHWEST QUARTER OF SECTION 15, TOWN 3 SOUTH, RANGE 8 EAST, VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 15; THENCE S.05°53'29"E. ALONG THE WEST LINE OF SAID SECTION, 1,788.52 FEET TO THE POINT OF BEGINNING; THENCE PROCEEDING N.88°56'28"E. 292.51 FEET; THENCE S.05°50'31"E. 299.56 FEET; THENCE S.88°56'28"W. 292.25 FEET TO A POINT ON THE WEST LINE OF SECTION 15; THENCE N.05°53'29"W. 30.00 FEET ALONG SAID WEST LINE; THENCE N.88°05'03"E. 145.89 FEET; THENCE N.05°53'29"W. 117.28 FEET; THENCE S.88°56'28"W. 146.06 FEET TO A POINT ON THE WEST LINE OF SECTION 15; THENCE N.05°53'29"W. 150.12 FEET ALONG SAID WEST LINE TO THE POINT OF BEGINNING, CONTAINING 1.61 ACRES, MORE OR LESS. SUBJECT TO THE RIGHT-OF-WAY FOR BELLEVILLE ROAD OVER THE WESTERLY 33.00 FEET THEREOF. SUBJECT TO ALL EASEMENTS, RESTRICTIONS, AND RIGHTS-OF-WAY IF ANY, OF RECORD.

NOTE: OWNER AGREES TO COMBINE ALL PARCELS INTO ONE PARCEL ONCE EXISTING BUILDINGS ARE REMOVED.

BENCH MARKS

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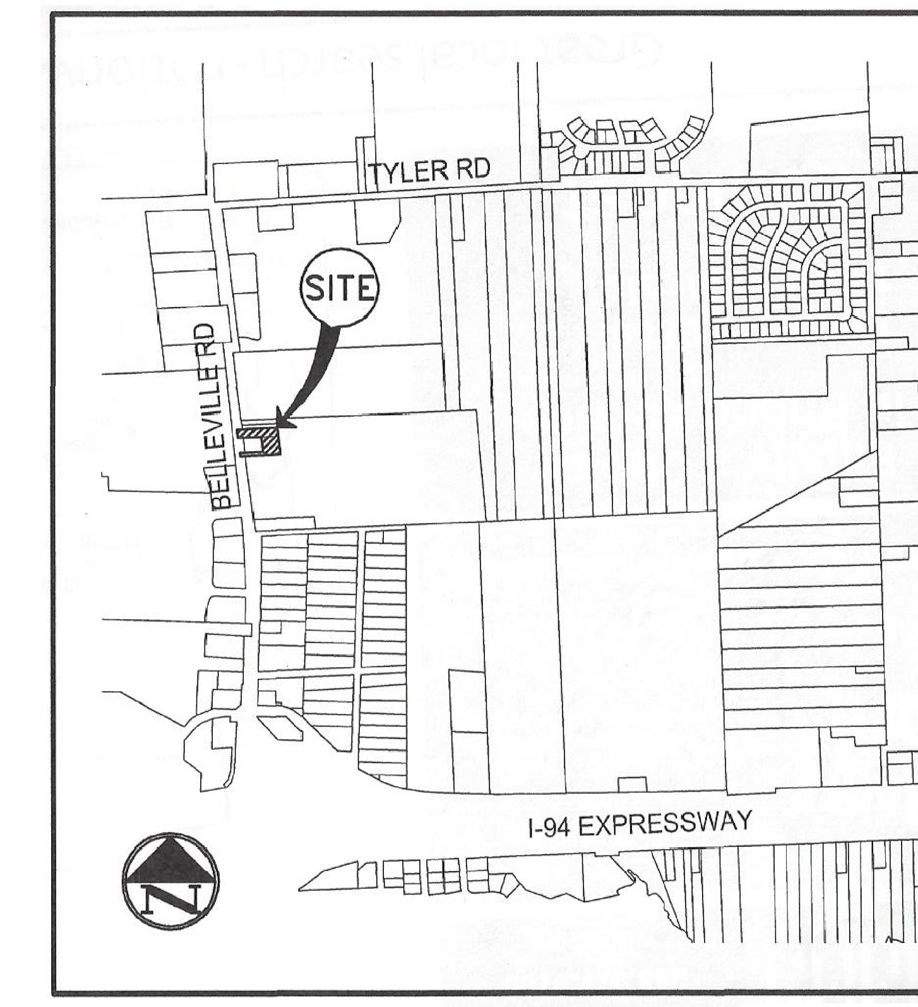

LOCATION MAP
NOT TO SCALE

SITE DATA

USE STATEMENT:
PROPOSED OFFICE BUILDING FOR THE DOWNTOWN DEVELOPMENT AUTHORITY, ACCESSORY BUILDINGS FOR STORAGE, PUBLIC BATHROOMS AND PROPOSED PARK FOR COMMUNITY USE.

SITE AREA:

TAX PARCEL 83-058-99-0008-000	0.251 AC. GROSS & 0.222 AC. NET
TAX PARCEL 83-058-99-0009-000	0.251 AC. GROSS & 0.222 AC. NET
TAX PARCEL 83-058-99-0012-701	1.106 AC. GROSS & 1.027 AC. NET
TOTAL	1.608 AC. GROSS & 1.471 AC. NET

SITE ZONING:
R1-B SINGLE FAMILY RESIDENTIAL

MINIMUM BUILDING SETBACKS:

	REQUIRED	PROVIDED
FRONT:	30 FT.	46.62 FT.
SIDE:	10 FT. (25 FT. TOTAL)	10 FT.
REAR:	35 FT.	45 FT.

BUILDING AREAS:

EXISTING		PROPOSED	
RESIDENCE:	2459 S.F.	MAIN BLDG.:	2,314 S.F.
GARAGE:	1131 S.F.	GARAGE:	768 S.F.
BARN:	649 S.F.	BARN:	672 S.F.
SHED:	276 S.F.	TOTAL:	3,754 S.F.
TOTAL:	4,515 S.F.		

PROPOSED BUILDING COVERAGE:
3,754 S.F. / 64,100 S.F. = 5.9%
PROPOSED BUILDING HEIGHT:
19'-9 3/4" FT. MAIN BLDG.
PARKING REQUIRED:
2,314 S.F. MAIN BLDG. x 1 SPACE/300 S.F. = 8 SPACES
12 BENCHES x 1 SPACE/BENCH = 12 SPACES
2 TABLES x 1 SPACE/TABLE = 2 SPACES
22 SPACES
PARKING PROVIDED:
26 SPACES INCLUDING 4 BARRIER FREE SPACES AND SHARED PARKING AGREEMENT
SITE SOILS CLASSIFICATION:
THETFORD LOAMY SAND PER U.S. SOIL CONSERVATION SERVICE MAPS (GROUP A)
SITE FLOODPLAIN:
NO APPARENT FLOODPLAINS OR WETLANDS EXIST ONSITE

NOTE: OWNER OF 10145 BELLEVILLE ROAD HAS AGREED TO ALLOW THE SOUTHERLY SPACE BEHIND THE BUILDING TO BE RE-MARKED FOR HANDICAPPED PARKING AS PART OF THE SHARED ACCESS AGREEMENT.

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0 10 20 40

LEGEND

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FIRE DEPARTMENT NOTES

1.) A KNOX BOX IS REQUIRED FOR THE DDA BUILDING AND A KNOX LOCK IS REQUIRED FOR THE SLIDING ACCESS GATE
2.) DDA BUILDING INTERIOR DOORS SHALL NOT HAVE DOOR STOPS ON THEM.
3.) DDA BUILDING ADDRESS IS REQUIRED ON SITE SIGN.

NOTE: PORTIONS OF EXISTING SITE BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN FROM SURVEY PREPARED BY WADE TRIM GROUPS, INC. DATED 8/25/16 AND PROVIDED BY CLIENT.

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
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LICENSED PROFESSIONAL ENGINEER

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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

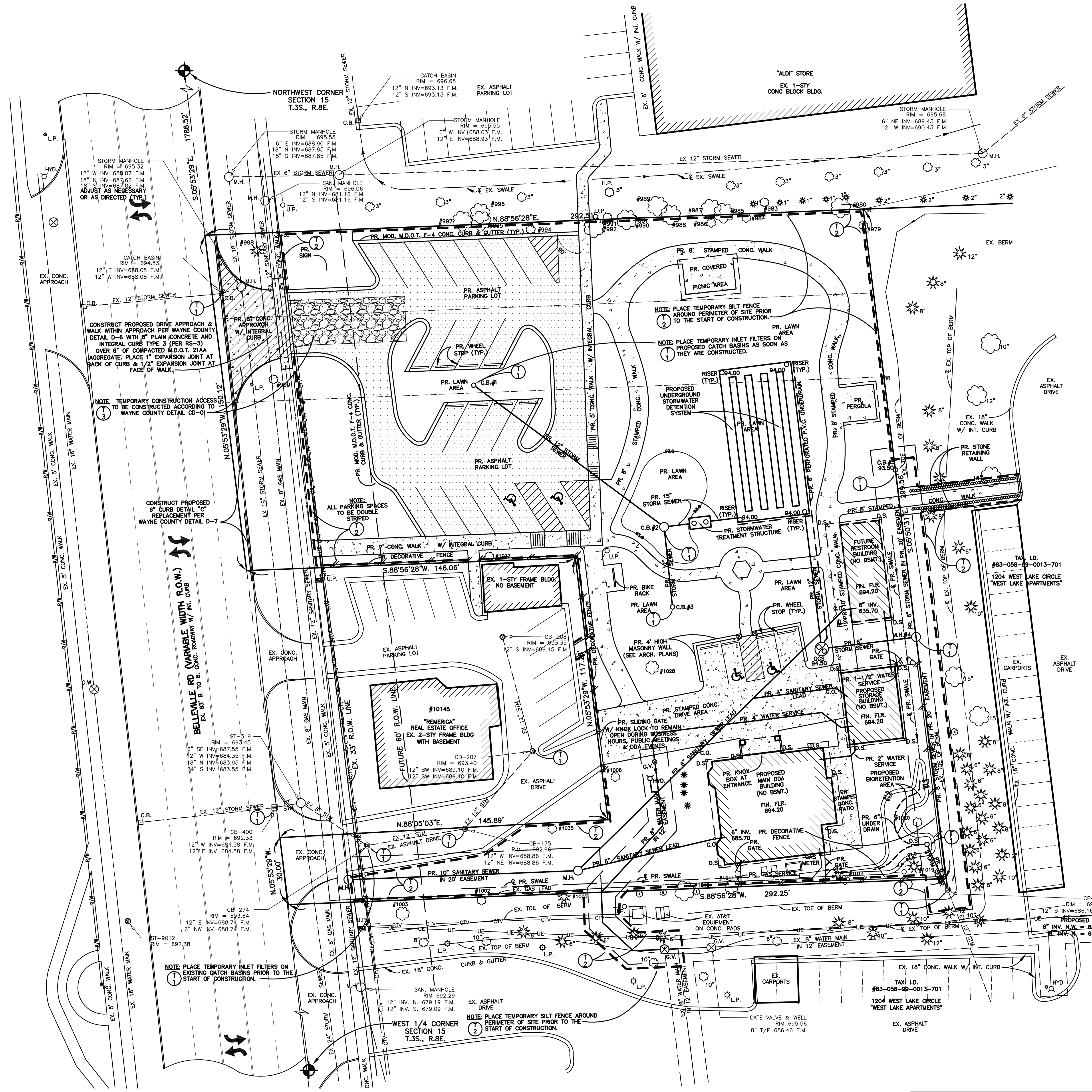
SITE GRADING & PAVING PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
03/21/18 - CONSTRUCTION SET
04/24/18 - PER CLIENT
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 08/25/17
SHEET NO.: C-2
JOB NO.: 161675



NORTH

SCALE:
1"=30'

0 15 30 40

LEGEND

+ 694.00	EXISTING ELEVATION
+ 94.00	PROPOSED ELEVATION (ADD 600 FEET)
—694—	EXISTING CONTOUR
—94—	PROPOSED CONTOUR (ADD 600 FEET)
U.P.	UTILITY POLE
L.P.	LIGHT POLE
GUY	GUY WIRE
T.S.	TRAFFIC SIGN
W.S.O.	WATER SHUT-OFF
G.S.O.	GAS SHUT-OFF
B.P.	BUMPER POST
A.M.	AMERITECH MARKER
A.P.	AMERITECH PEDESTAL
B1	SOIL BORING LOCATION

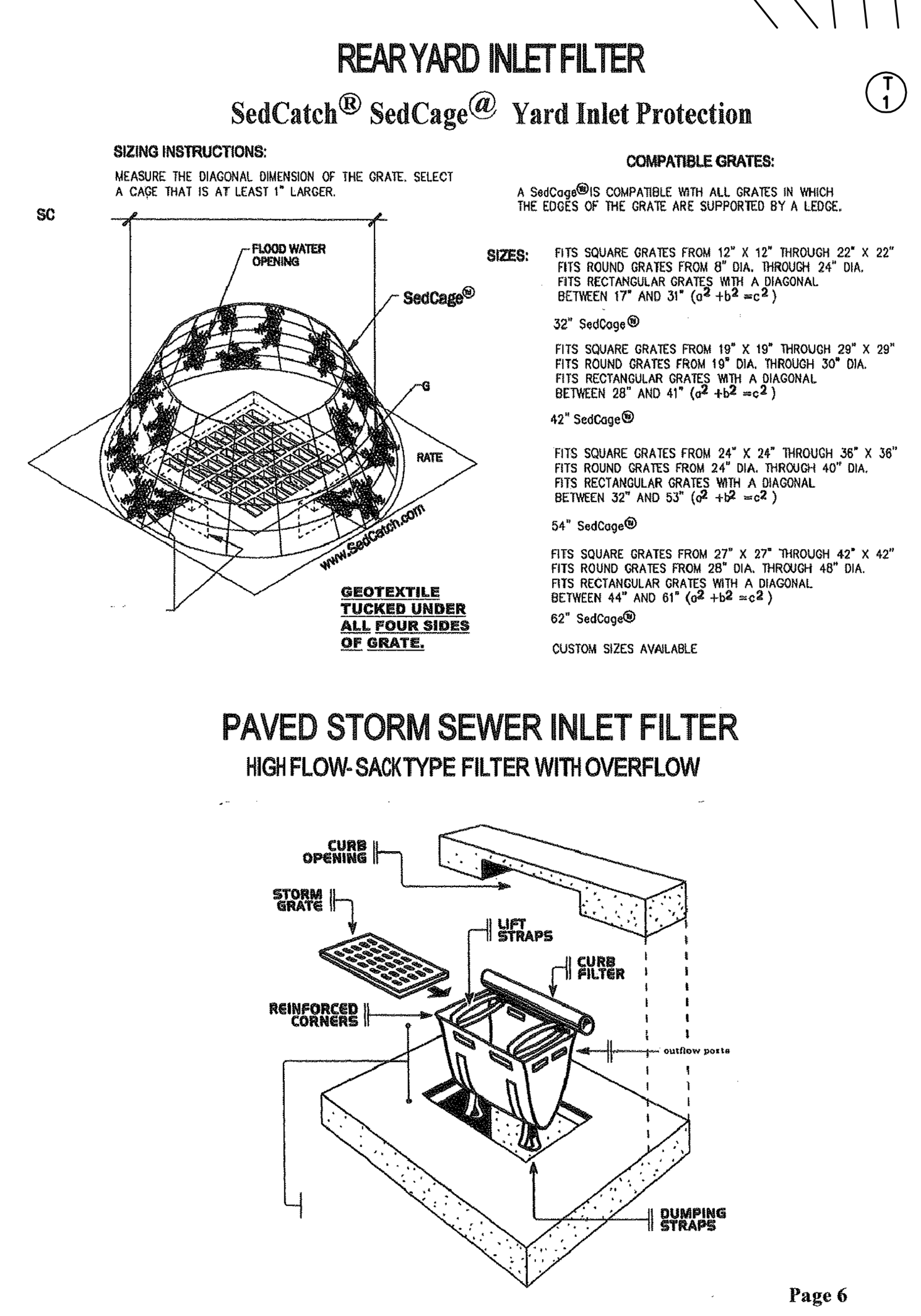
SOIL EROSION CONTROL MEASURES LEGEND

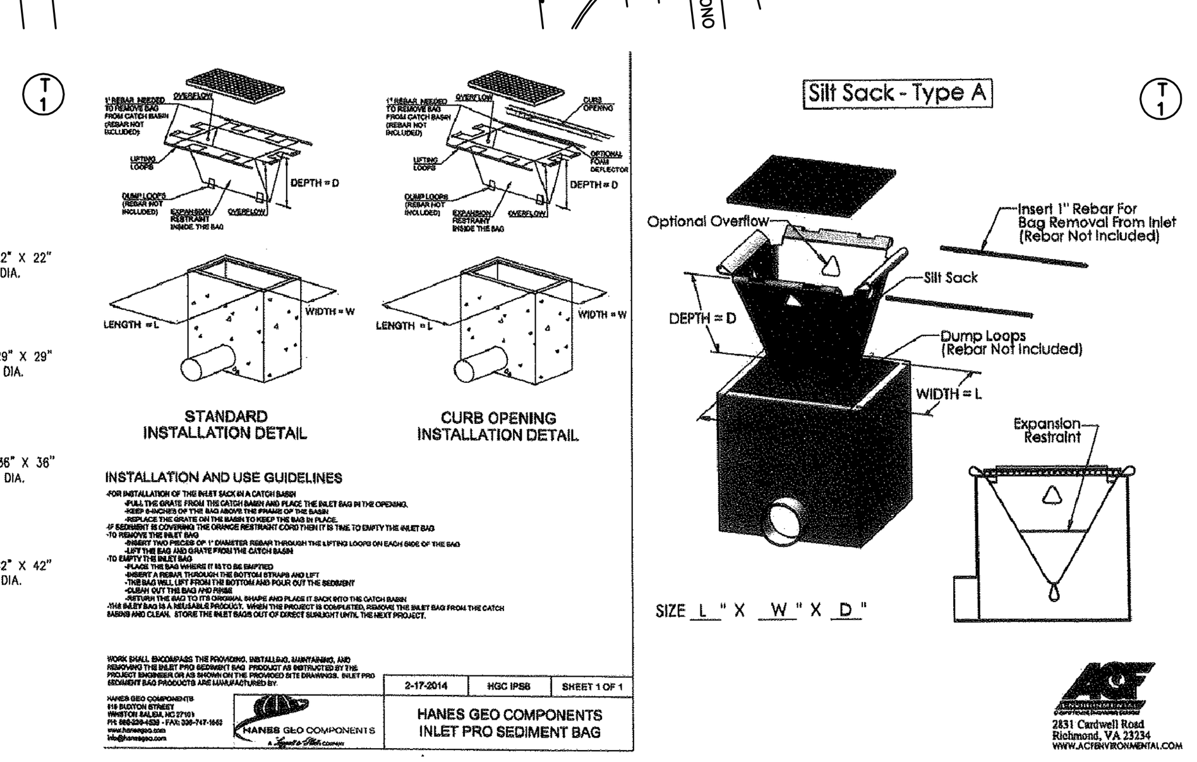
- (T1) – TEMPORARY INLET FILTER
- (T2) – TEMPORARY SILT FENCE
- (T3) – TEMPORARY TRACKING MAT

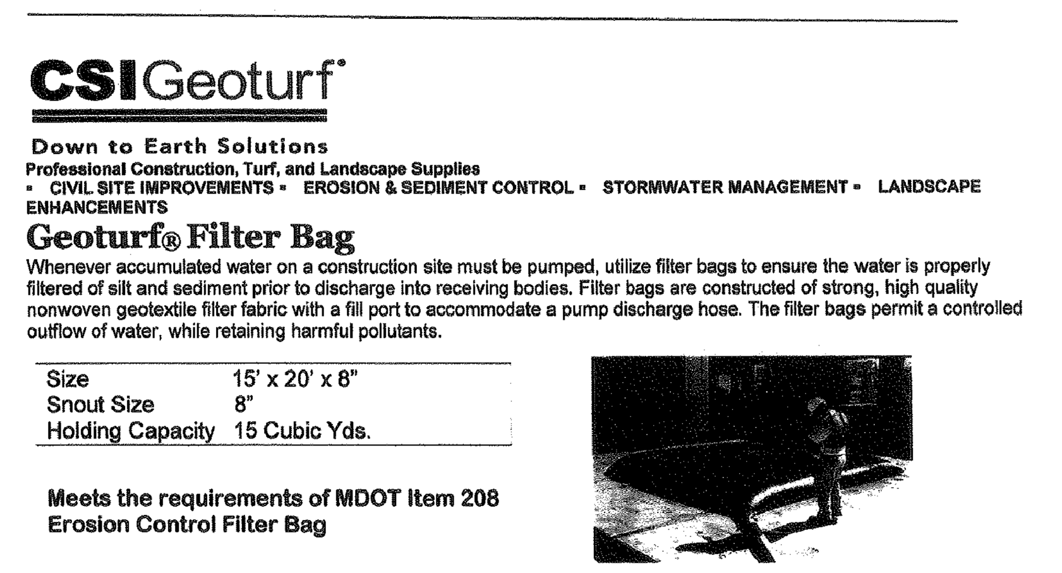
BENCH MARKS

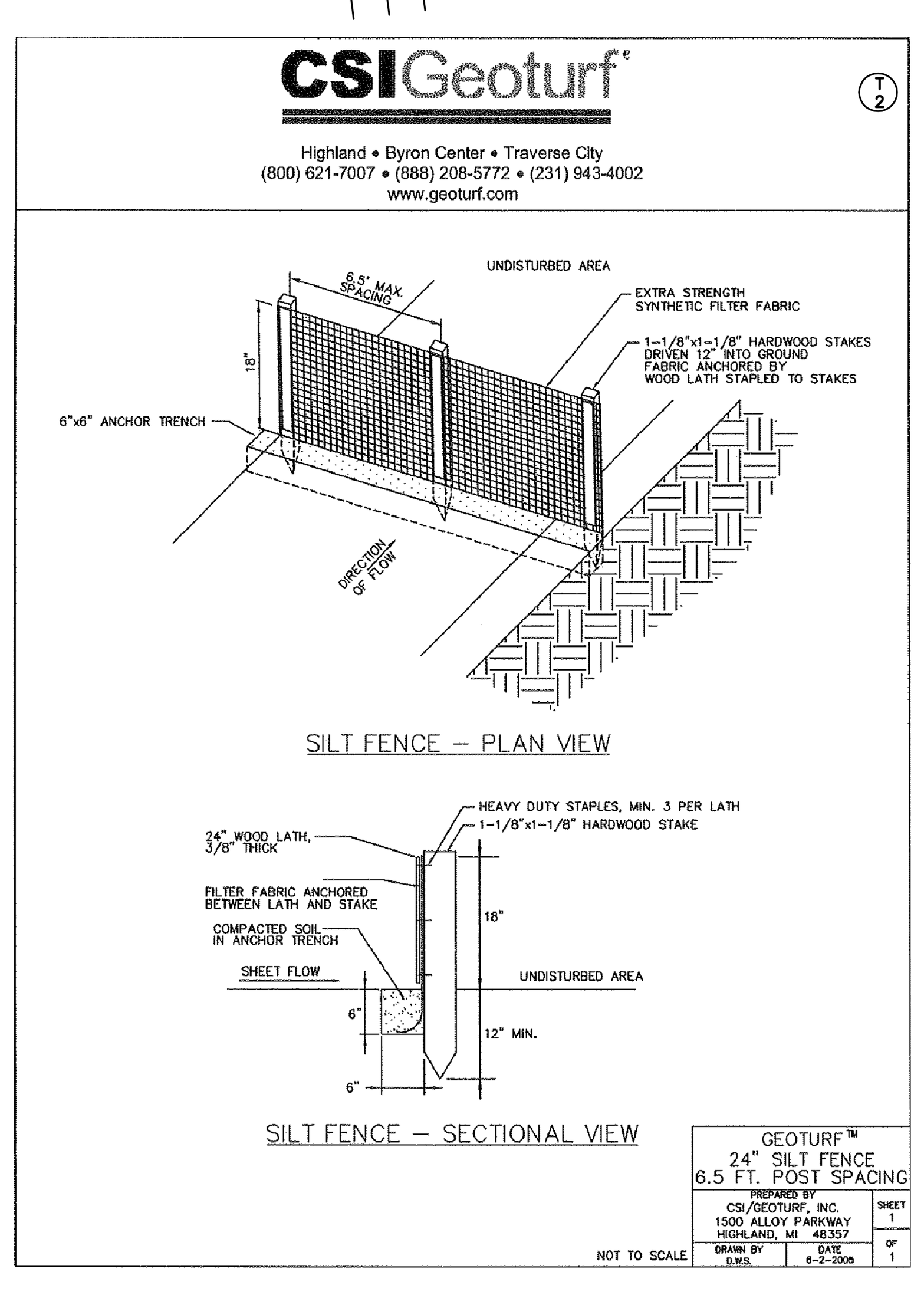
B.M.–1 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, 10' ± SOUTH OF SOUTHWEST CORNER OF SITE.
ELEVATION 694.18 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)

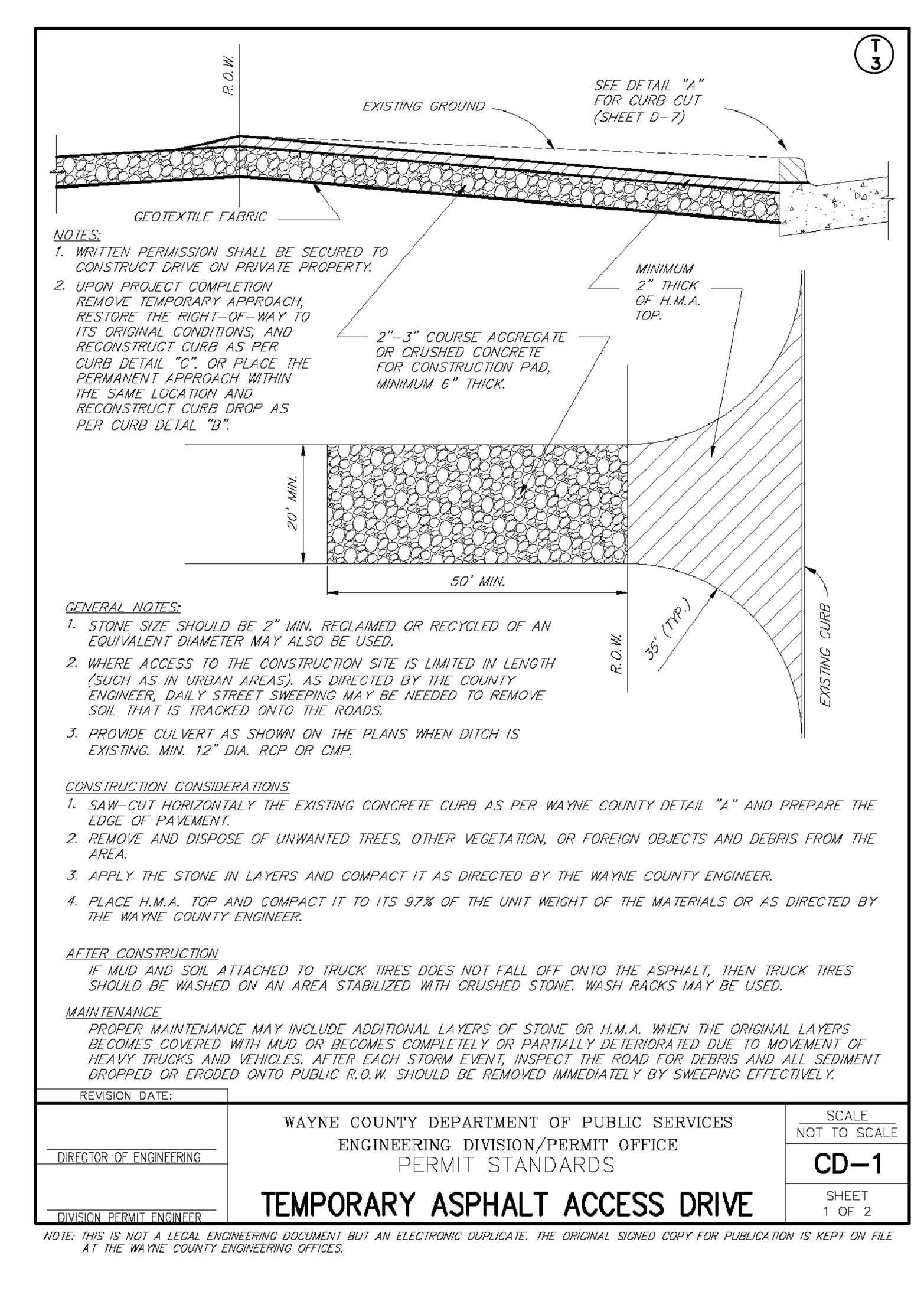
B.M.–2 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, ON NORTH LINE OF REMAX SITE.
ELEVATION 696.15 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)
(PER SURVEY PREPARED BY WADE TRIM GROUPS DATED 8/25/16)











GENERAL NOTES

1.) ALL SIGNS SHALL CONFORM TO VAN BUREN TOWNSHIP SIGN REGULATIONS.
2.) NO OUTDOOR STORAGE IS PROPOSED FOR THIS SITE.
3.) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL VAN BUREN TOWNSHIP PERMITS AND ANY OTHER PERMITS REQUIRED FOR CONSTRUCTION.
4.) ANY HAZARDOUS MATERIALS USED, STORED OR PROCESSED ON SITE WILL BE TO ALL APPLICABLE REGULATIONS.
5.) ALL SIGHT LIGHTING SHALL BE SHIELDED OR DIRECTED TO REMAIN WITHIN THE SITE BOUNDARIES, THIS SHALL INCLUDE SHIELDING FROM VIEW FROM OFFSITE THE HOT SPOT OF ALL LIGHTS.
6.) OWNER AGREES TO PICK UP DEBRIS ON PROPERTY AND BLOWING FROM PROPERTY WEEKLY OF AS NEEDED.
7.) OWNER AGREES PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES AND SURFACES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED. PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION.
8.) THE DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH ARE A RESULT OF THE DEVELOPER'S ACTIVITIES.
9.) OWNER AGREES TO SEASONAL MAINTENANCE PROGRAM AND WILL REPLACE ALL DISEASED, DEAD OR DAMAGED PLANTS, REPLENISH MULCH, CONTROL WEEDS, FERTILIZE AND PRUNE BEGINNING UPON COMPLETION OF CONSTRUCTION OF LANDSCAPING.
10.) THE APPLICANT SHALL KEEP THE GATE BETWEEN THE REAL ESTATE OFFICE AND THE ADDITIONAL PARKING AREA FOR THE DDA BUILDING OPEN DURING BUSINESS HOURS, PUBLIC MEETINGS AND DDA EVENTS.

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES NOTES

A.) ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES.
B.) THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN ROAD RIGHTS-OF-WAY, PARKS, DRAIN EASEMENTS OR SANITARY SEWER UNDER THE JURISDICTION OF WAYNE COUNTY (07/01/93) REVISED (12/15/04).
C.) RESTORE ALL DISTURBED AREAS UNDER WAYNE COUNTY RIGHT-OF-WAY WITH 3" TOPSOIL AND CLASS "A" HYDROSEED. SLOPES STEEPER THAN 1:3 SHALL BE RESTORED BY PLACING SOD.
D.) MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE M.M.U.T.C.D.
E.) CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT MR. PAUL POLKOWSKI AT (734) 595-6504 EXTENSION 2009.
F.) CONTRACTOR SHALL OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DOE.
G.) REPLACE, RESTORE AND RELOCATE ALL TRAFFIC SIGNS THAT ARE AFFECTED BY THIS CONSTRUCTION AS DIRECTED BY THE COUNTY ENGINEER

CONSTRUCTION NOTES

1.) ALL SITE CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF VAN BUREN TOWNSHIP & WAYNE COUNTY.
2.) ALL CONSTRUCTION WITHIN BELLEVILLE ROAD R.O.W. SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES. W.C.D.P.S. PERMIT IS REQUIRED.
3.) ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ONSITE. A S.E.S.C. PERMIT IS REQUIRED FROM THE WAYNE COUNTY DEPT. OF THE ENVIRONMENT. ALL TOPSOIL WITHIN THE PROPOSED CONSTRUCTION AREA SHALL BE STRIPPED AND STOCKPILED PRIOR TO THE START OF ANY GRADING AND UTILITIES WORK. ANY SITE FILLING DONE DURING MASS GRADING SHALL UTILIZE CLEAN SOIL, FREE OF ANY VEGETATION OR ORGANIC MATERIALS. ALL FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST. ALL EXCAVATION UNDER OR WITHIN 6 FEET OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL. ALL DISTURBED AREAS WHICH ARE UNPAVED ARE TO BE STABILIZED WITH 4" TOPSOIL, SEED AND MULCH (OR SOD) AS SOON AS FINAL GRADING IS COMPLETE.
4.) ALL WATER MAIN AND SERVICE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP WATER MAIN DETAIL SHEETS AND SHALL HAVE 6 FOOT MINIMUM COVER. A MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
5.) ALL SANITARY SEWER AND LEAD CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP SANITARY SEWER DETAIL SHEET. A MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
6.) ALL STORM SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP STORM SEWER DETAIL SHEET. RUBBER GASKET JOINTS ARE REQUIRED FOR ALL STORM SEWER. THE PIPE BEDDING SHOULD BE MAXIMUM 3/4-INCH DIAMETER CRUSHED STONE.
8.) THE PROPOSED GRADES SHOWN WITHIN PAVEMENT AREAS ARE FINISHED PAVEMENT GRADES. SEE CONCRETE CURB AND GUTTER DETAIL OR CONCRETE WALK WITH INTEGRAL CURB DETAIL WHERE APPLICABLE. THE PROPOSED ONSITE CONCRETE DRIVES & WALKS SHALL BE AS SHOWN ON THE PAVEMENT DETAILS ON SHEET C-5. THE PROPOSED ONSITE ASPHALT PAVING SHALL BE:
3-1/2" – M.D.O.T. No. 1100 BITUMINOUS MIX ON
6" – M.D.O.T. No. 21AA AGGREGATE BASE

SOIL EROSION & SEDIMENTATION CONTROL SEQUENCE

DATES:		
10/01/18 – 10/15/18	1.)	INSTALL TEMPORARY SILT FENCE AROUND PERIMETER OF CONSTRUCTION AREA. INSTALL TEMPORARY STONE TRACKING MAT AT PROPOSED SITE ACCESS LOCATION. REMOVE EXISTING BUILDINGS, PAVEMENT, TREES & UTILITIES AS SHOWN ON SITE DEMOLITION PLAN. STRIP TOPSOIL FROM CONSTRUCTION AREA AND STOCKPILE FOR REUSE IN AREA ENCLOSED BY SILT FENCE.
10/16/18 – 11/15/18	2.)	MASS GRADE SITE, BEGIN BUILDING CONSTRUCTION. CONTROL DUST FROM SITE AT ALL TIMES BY WATERING AS NECESSARY. REMOVE ANY DIRT WHICH IS TRACKED ONTO ADJACENT ROADWAYS IMMEDIATELY. INSPECT ALL TEMPORARY EROSION CONTROL MEASURES ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSES SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION.
11/16/18 – 12/31/18	3.)	INSTALL SITE UTILITIES INCLUDING UNDERGROUND DETENTION SYSTEM. PLACE TEMPORARY INLET FILTERS ON NEW DRAINAGE STRUCTURES AS SOON AS THEY ARE CONSTRUCTED.
01/01/19 – 05/31/19	4.)	FINE GRADE PAVEMENT AREAS AND INSTALL PAVEMENT.
06/01/19 – 06/30/19	5.)	FINISH GRADE ALL REMAINING UNPAVED AREAS. REDISTRIBUTE TOPSOIL. SEED, FERTILIZE & MULCH ALL REMAINING UNPAVED AREAS WITHIN FIVE (5) DAYS OF FINAL GRADING.
07/01/19 – 07/31/19	6.)	COMPLETE BUILDING CONSTRUCTION. CLEAN SITE PAVEMENT, STORM SEWERS AND DETENTION BASIN REMOVING ANY ACCUMULATED SEDIMENT AND DEBRIS. REMOVE TEMPORARY EROSION CONTROL MEASURES WHEN ALL AREAS ARE STABILIZED.

SOIL & SEDIMENTATION CONTROL MEASURES INSPECTION & MAINTENANCE SCHEDULE

ALL TEMPORARY EROSION CONTROL MEASURES SHOULD BE CHECKED ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSE SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION. EXAMPLES OF REQUIRED MAINTENANCE INCLUDE THE FOLLOWING:

INLET FILTERS – REMOVE AND REPLACE THE PEA GRAVEL MATERIAL PERIODICALLY SO AS NOT TO BECOME CLOGGED. ANY DAMAGED FILTERS SHALL BE REPLACED IMMEDIATELY.
SILT FENCE – SOIL ACCUMULATED BEHIND THE SILT FENCE SHOULD BE REMOVED AFTER REACHING A 6" HEIGHT. ANY AREAS WHERE THE SILT FENCE HAS BEEN UNDERCUT SHALL BE REINSTALLED WITH THE REQUIRED 6" MINIMUM ANCHOR TRENCH. ANY DAMAGED SILT FENCE SHALL BE REPLACED IMMEDIATELY.
TRACKING MAT – CRUSHED CONCRETE SHOULD BE ADDED TO THE TRACKING MATS AS THEY BECOME COVERED WITH MUD. ADJACENT ROADWAYS SHOULD BE CLEANED ON A DAILY BASIS AS NECESSARY TO REMOVE ANY DIRT WHICH MAY BE TRACKED ONTO THEM.
TOPSOIL, SEED, & MULCH – ALL GREENBELT AREAS SHOULD RECEIVE 4" TOPSOIL, SEED AND MULCH (OR HYDRO-SEED OR SOD) WITHIN FIVE (5) DAYS OF REACHING FINAL GRADE. ANY ERODED AREAS SHALL BE IMMEDIATELY REPAIRED BY REGRADING AND PLACING ADDITIONAL SEED & MULCH.

PROPOSED SOIL EROSION CONTROL QUANTITIES

1,539 L.F. – TEMPORARY SILT FENCE
11 EA. – TEMPORARY INLET FILTERS
1 EA. – TEMPORARY TRACKING MAT

NOTE: PORTIONS OF EXISTING SITE BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN FROM SURVEY PREPARED BY WADE TRIM GROUPS, INC. DATED 8/25/16 AND PROVIDED BY CLIENT.

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39474
LICENSED PROFESSIONAL ENGINEER

Know what's below.
Call before you dig.

WAKELY ASSOCIATES, INC.
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SUITE M-7
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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE SOIL EROSION & SEDIMENTATION CONTROL PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

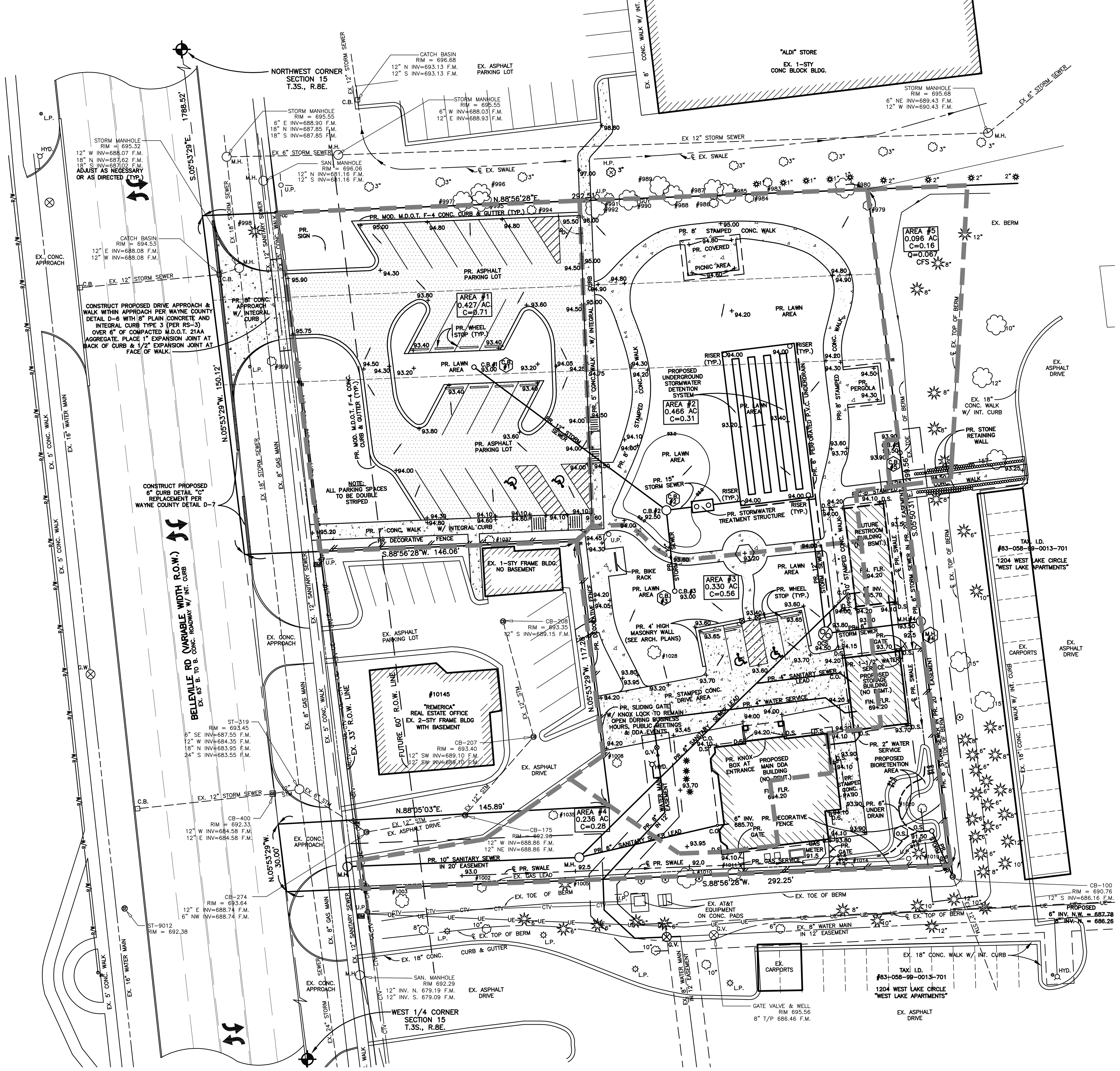
DRAWN BY: RM
CHECKED BY: PL

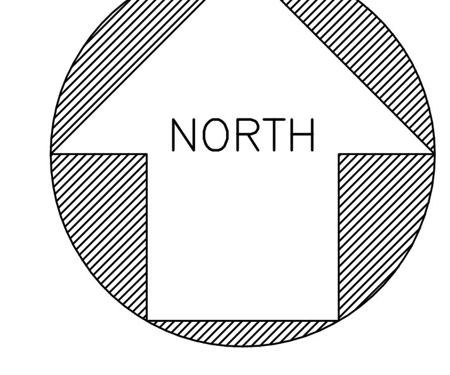
REVISIONS:
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 05/21/18

SHEET NO.: C-3

JOB NO.: 161675





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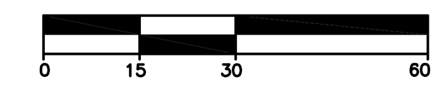


LEGEND

- 694.00 × – EXISTING ELEVATION
- + 94.00 – PROPOSED ELEVATION (ADD 600 FEET)
- —694— – EXISTING CONTOUR
- —94— – PROPOSED CONTOUR (ADD 600 FEET)
- U.P. – UTILITY POLE
- L.P. – LIGHT POLE
- GUY – GUY WIRE
- T.S. – TRAFFIC SIGN
- W.S.O. – WATER SHUT-OFF
- G.S.O. – GAS SHUT-OFF
- B.P. – BUMPER POST
- A.M. – AMERITECH MARKER
- A.P. – AMERITECH PEDESTAL
- B1 – SOIL BORING LOCATION

UNDERGROUND STORMWATER DETENTION CALCULATIONS

DETENTION VOLUME REQUIRED

USE W.C.D.P.S. METHODOLOGY TO DETERMINE THE REQUIRED UNDERGROUND DETENTION VOLUME FOR A 10 YR. STORM BASED ON 0.10 CFS/ACRE DISCHARGE RATE PER THE CURRENT VAN BUREN TOWNSHIP DESIGN AND CONSTRUCTION STANDARDS. THE UNDERGROUND DETENTION TRIBUTARY AREA IS THE NORTHERLY SITE AREA (D.A. #1, 2 & 3) OF 1.223 ACRES AND ITS WEIGHTED AVERAGE RUNOFF COEFFICIENT "C" IS CALCULATED TO BE 0.52.

$$\text{WEIGHTED SITE RUNOFF COEFFICIENT} = \frac{24{,}646\ S.F.(0.95) + 28{,}633\ S.F.(0.15)}{53{,}279\ S.F.\ \text{TOTAL TRIBUTARY AREA}} = 0.52$$

DETENTION VOLUME REQUIRED

$$Q_o = \frac{\text{ALLOWABLE OUTFLOW } Q_A}{\text{(ACREAGE)(RUNOFF COEFFICIENT)}} \quad \text{WHERE: } Q_A = \text{(ACREAGE)(0.10 CFS/AC.)}$$

$$Q_o = \frac{(1.223\ AC.)(0.10\ CFS/AC.)}{(1.223\ AC.)(0.52\ AVG.\ VALUE)} = 0.192\ \text{CFS/AC. IMP.}$$

$$T_{10} = -19.9 + \sqrt{\frac{4.530}{Q_o}}$$

$$T_{10} = -19.9 + \sqrt{\frac{4.530}{0.192}} = 133.70\ \text{MIN.}$$

$$V_{S10} = \frac{9.108(T)}{T + 19.9} - 40(Q_o)(T)$$

$$V_{S10} = \frac{9.108(133.70)}{133.70 + 19.9} - 40(0.192)(133.70) = 6{,}901.18\ FT.^3/AC.\ IMP.$$

$$V_{T10} = V_{S10}\text{(ACREAGE)(RUNOFF COEFFICIENT)}$$

V_{T10} = (6,901.17)(1.223)(0.52) = <u>4,389 CU. FT. REQUIRED FOR 10 YR. STORM VOLUME</u>

BANK FULL VOLUME REQUIRED

$V_{T,BF}$ = BANK FULL STORAGE VOLUME
$V_{T,BF}$ = 5160(ACREAGE)(RUNOFF COEFFICIENT)
$V_{T,BF}$ = 5160(1.223)(0.52) = 3,282 CU. FT. REQUIRED FOR BANK FULL VOLUME

UNDERGROUND DETENTION VOLUME PROVIDED

STORAGE VOLUME IN 48" DIA. PIPE:
V = (300+64)(12.57 C.F/L.F.) = 4,575 CU. FT. UNDERGROUND DETENTION PROVIDED

Z_O = 687.96 INVERT AT 48" C.M.P. DETENTION
Z_{OUT} = 686.98 OUTLET INVERT AT OUTLET CONTROL STRUCTURE

BANK FULL STORAGE ELEVATION

$A_{BF} = V_{BF}$ /TOTAL UNDERGROUND DETENTION PIPE LENGTH
A_{BF} = 3,282 C.F./364 FT. = 9.02 SQ. FT.
Z_{BF} = SEGMENT HT. FOR 9.02 SQ. FT. + 679.96 AVG. DETENTION INVERT EL.
Z_{BF} = 2.70 FT. + EL. 687.96 = EL. 690.66

10 YR STORM STORAGE ELEVATION

$A_{10\ YR} = V_{10\ YR}$/TOTAL UNDERGROUND DETENTION PIPE LENGTH
$A_{10\ YR}$ = 4,389 C.F./364 FT. = 12.06 SQ. FT.
$Z_{10\ YR}$ = SEGMENT HT. FOR 12.06 SQ. FT. + 679.96 AVG. DETENTION INVERT EL.
$Z_{10\ YR}$ = 3.66 FT. + EL. 687.96 = EL. 691.62

BANK FULL ORIFICE DESIGN

$Q_{AVG.\ BF} = V_{BF}$ /(40(60)(60)) SEC
$Q_{AVG.\ BF}$ = 3,282 C.F./144,000 SEC
$Q_{AVG.\ BF}$ = 0.0228 CFS
$h_{AVG.\ BF} = 0.5(Z_{BF} - Z_O) + (Z_O - Z_{OUT})$
$h_{AVG.\ BF}$ = 0.5(690.66−687.96) + (687.96−686.98) = 2.33 FT.

$$A_O = \frac{Q_{AVG.\ BF}}{0.62\sqrt{2gh_{AVG}}}$$

$$A_O = \frac{0.0228}{0.62\sqrt{2(32.2)(2.33)}} = 0.0030\ S.F.$$

USE ONE 1" MINIMUM DIA. HOLE (0.0055 S.F.) AT EL. 686.98

A_{ACTUAL} = 0.00545 FT^2 = NO. OF HOLES x AREA OF HOLE
$Q_{AVE\ ACTUAL}$ = 0.041 CFS = $(0.62 \times A_{ACTUAL} \times (32.2 \times 2 \times H_{AVE})^{0.5})$
ACTUAL TIME = 22.24 HRS = $V_{T\ BF}/(Q_{AVE\ ACTUAL} \times (32.2 \times 2 \times H_{AVE})^{0.5})$

10 YEAR STORM ORIFICE DESIGN

Q_{PEAK} = 0.122 CFS = Q_A

CALCULATE FOR BANK FULL HOLE(S) CONTRIBUTION

$H_{AVE\ (BF)}$ = 4.64 FT = Z10 − Zo + (Zo − Zout)
$Q_{AVE\ (BF)}$ = 0.058 CFS = $(0.62 \times A_{ACTUAL\ (BF)} \times (32.2 \times 2 \times H_{AVE\ (BF)})^{0.5})$

EXTRA HOLE(S) ARE REQUIRED

$Q_{ADJUSTED}$ = 0.64 CFS = $Q_{PEAK} - Q_{AVE\ (BF)}$
H_{AVE} = 0.96 FT = Z10 − Zbf
A = 0.0132 FT^2 = $Q_{ADJUSTED} / 0.62 \times (32.2 \times 2 \times H_{AVE})^{0.5})$
HOLE SIZE = 1.5 IN
HOLE # = 1.076

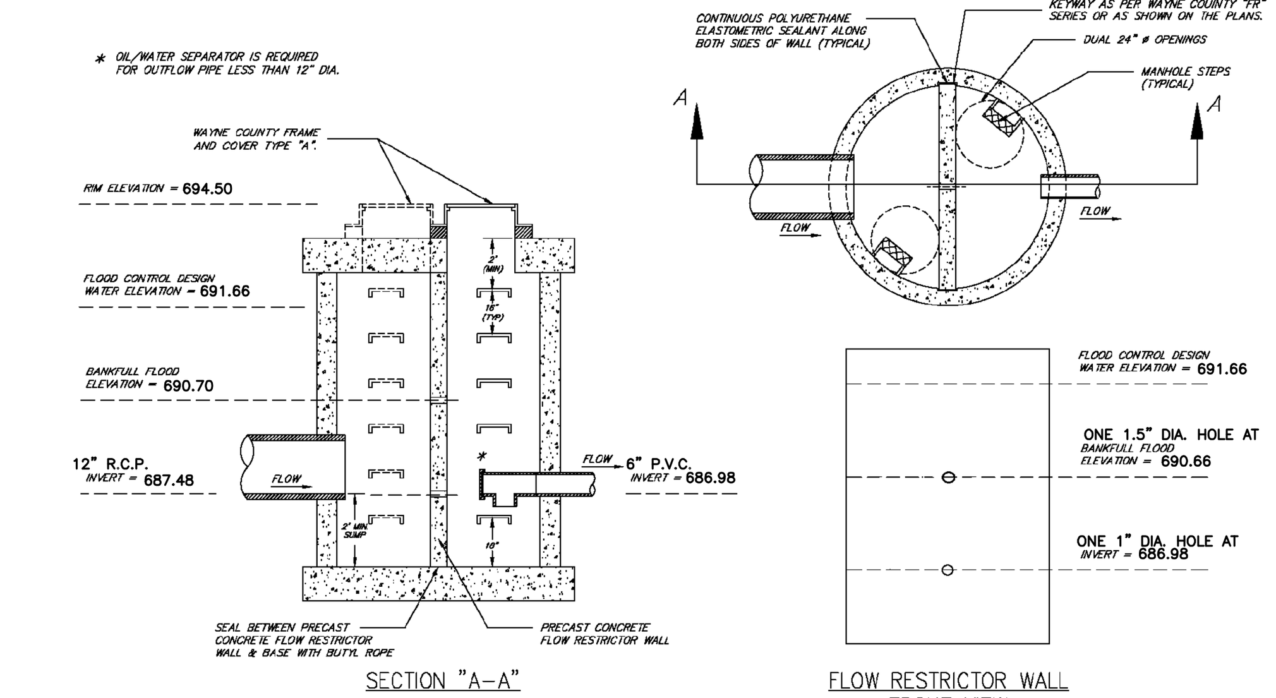
USE ONE 1-1/2" DIA. HOLE (0.0123 S.F.) AT EL. 690.66

A_{ACTUAL} = 0.0123 FT^2 = NUMBER OF HOLES x AREA OF HOLE
Q_{ACTUAL} = 0.118 CFS = $Q_{AVE\ (BF)} + (0.62 \times A_{ACTUAL} \times (32.2 \times 2 \times H^{AVE})^{0.5})$

OUTLET PIPE DESIGN

Q_{PEAK} = 0.122 CFS = $Q_{10\ YEAR}$ IF DISCHARGING TO A DRAIN
= Q_A IF DISCHARGING TO A ROAD STORM SYSTEM

PIPE SIZE = 6 IN.
n = 0.012
AREA = 0.19635 FT^2
R = 0.125 FT.
MIN. SLOPE = 0.04%
V = 0.6 FT./S



1. THE PRECAST REINFORCED OUTLET FLOW RESTRICTOR STRUCTURE SHALL BE MANUFACTURED PER ASTM C-479 SPECIFICATIONS AND MEETING HS20 LOADING REQUIREMENTS.
2. THE STRUCTURE GEOMETRIC AND REINFORCEMENT DETAILS SHALL BE PER WAYNE COUNTY STANDARD DETAIL FR-1 SHOWN ON SHEET C-11.
3. THE MANUFACTURER OF THE OUTLET STRUCTURE MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734)595-6504 EXT. 2105 AT LEAST 3 WORKING DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION.

OUTLET CONTROL STRUCTURE
(SHOWN AS OCS ON PLANS)

DRAINAGE AREA WEIGHTED "C" VALUE CALCULATIONS

DRAINAGE AREA #1
TOTAL AREA = 18,606 S.F. OR 0.427 AC.
PAVEMENT/BUILDING AREA: 13,130 S.F.(0.95) = 12,474
GREEN AREA: 5,476 S.F.(0.15) = 821
18,606 S.F. 13,295/18,606 = 0.71

DRAINAGE AREA #2
TOTAL AREA = 20,289 S.F. OR 0.466 AC.
PAVEMENT/BUILDING AREA: 4,110 S.F.(0.95) = 3,905
GREEN AREA: 16,179 S.F.(0.15) = 2,427
20,289 S.F. 6,332/20,289 = 0.31

DRAINAGE AREA #3
TOTAL AREA = 14,384 S.F. OR 0.330 AC.
PAVEMENT/BUILDING AREA: 7,406 S.F.(0.95) = 7,036
GREEN AREA: 6,978 S.F.(0.15) = 1,047
14,384 S.F. 8,083/14,384 = 0.56

DRAINAGE AREA #4
TOTAL AREA = 10,282 S.F. OR 0.236 AC.
PAVEMENT/BUILDING AREA: 1,715 S.F.(0.95) = 1,629
GREEN AREA: 8,567 S.F.(0.15) = 1,285
10,282 S.F. 2,914/10,282 = 0.28

DRAINAGE AREA #5
TOTAL AREA = 4,169 S.F. OR 0.096 AC.
PAVEMENT/BUILDING AREA: 52 S.F.(0.95) = 49
GREEN AREA: 4,117 S.F.(0.15) = 625
4,169 S.F. 674/4,169 = 0.16

NOTE: SITE SOILS ARE THETFORD LOAMY SAND PER U.S. SOIL CONSERVATION SERVICE MAPS (SOIL GROUP A)

BIORETENTION AREA STORMWATER STORAGE CALCULATIONS

BIORETENTION VOLUME REQUIRED

USE W.C.D.P.S. METHODOLOGY TO DETERMINE THE REQUIRED BIORETENTION VOLUME FOR A 10 YR. STORM BASED ON 0.10 CFS/ACRE DISCHARGE RATE PER THE CURRENT VAN BUREN TOWNSHIP DESIGN AND CONSTRUCTION STANDARDS. THE BIORETENTION TRIBUTARY AREA IS THE SOUTHEASTERLY SITE AREA (D.A. #4) OF 0.236 ACRES AND ITS WEIGHTED AVERAGE RUNOFF COEFFICIENT "C" IS CALCULATED TO BE 0.28.

$$\text{WEIGHTED SITE RUNOFF COEFFICIENT} = \frac{1{,}715\ S.F.(0.95) + 8{,}567\ S.F.(0.15)}{10{,}282\ S.F.\ \text{TOTAL TRIBUTARY AREA}} = 0.28$$

BIORETENTION VOLUME REQUIRED

$$Q_o = \frac{\text{ALLOWABLE OUTFLOW } Q_A}{\text{(ACREAGE)(RUNOFF COEFFICIENT)}} \quad \text{WHERE: } Q_A = \text{(ACREAGE)(0.10 CFS/AC.)} = 0.0236\ \text{CFS}$$

$$Q_o = \frac{(0.236\ AC.)(0.10\ CFS/AC.)}{(0.236\ AC.)(0.28\ AVG.\ VALUE)} = 0.357\ \text{CFS/AC. IMP.}$$

$$T_{10} = -19.9 + \sqrt{\frac{4.530}{Q_o}}$$

$$T_{10} = -19.9 + \sqrt{\frac{4.530}{0.357}} = 92.75\ \text{MIN.}$$

$$V_{S10} = \frac{9.108(T)}{T + 19.9} - 40(Q_o)(T)$$

$$V_{S10} = \frac{9.108(92.75)}{92.75 + 19.9} - 40(0.357)(92.75) = 6{,}174.57\ FT^3/AC.\ IMP.$$

$$V_{T10} = V_{S10}\text{(ACREAGE)(RUNOFF COEFFICIENT)}$$

V_{T10} = (6,174.57)(0.236)(0.28) = 408 CU. FT. REQUIRED FOR 10 YR. STORM VOLUME

BIORETENTION VOLUME PROVIDED

	CONTOUR	AREA	VOLUME
ABOVE GROUND STORAGE	691.5 691.0	764 S.F. 456 S.F.	$> \left(\frac{0.5}{3}\right)\left(764+456+(764X456)^{1/2}\right)$ = 302 CU. FT.
PLANTING & GRAVEL LAYERS STORAGE (20% VOIDS)	691.0 688.0	456 S.F. 304 S.F.	$> 20\%\left(\frac{3.0}{3}\right)\left(456+304+(456X304)^{1/2}\right)$ = 226 CU. FT.

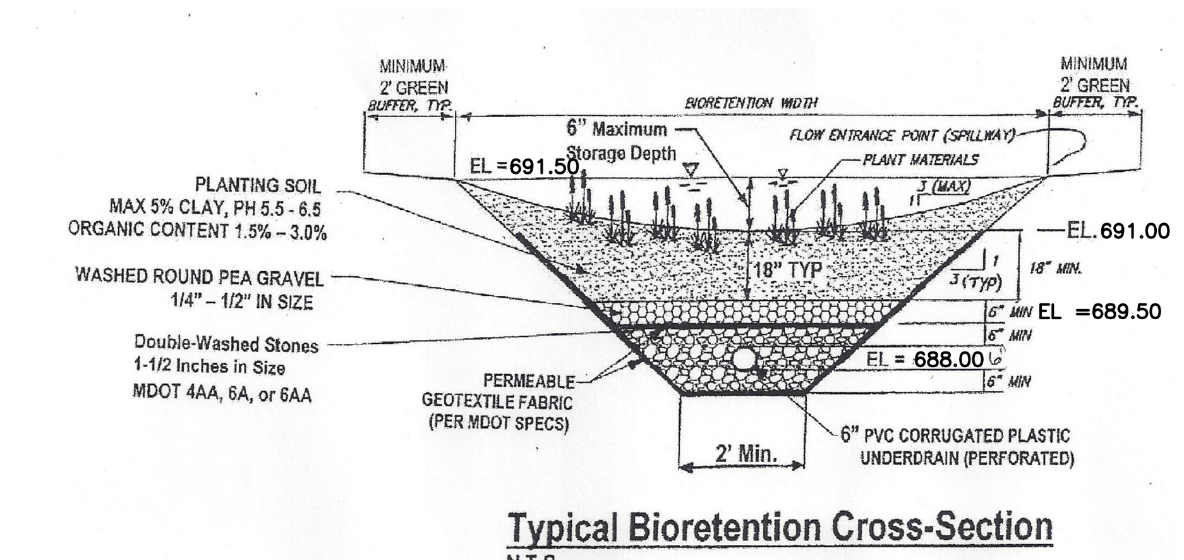
BIORETENTION VOLUME PROVIDED = 528 CU. FT.

Project DDA 2016 PLACEMAKING PROJECT	Environmental engineers, Inc.
Project No. 1648	10 Year Frequency Storm Design for Storm Sewer Systems
Date 09/29/17 By PL REV. 08/18/18	SHEET 1 OF 1

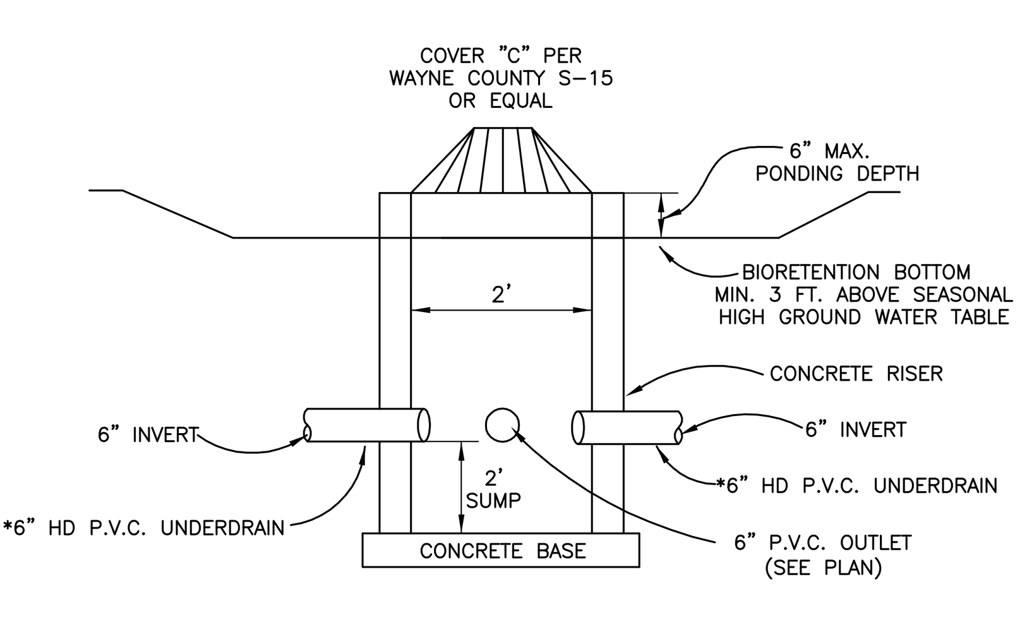
Q = CIA
$Q = 1.486 x A x R^{2/3} x S^{1/2}$ (MANNINGS)
$*I = \frac{151.8}{T + 19.9}$
$n_{R.C.P.}$ = 0.013
$n_{P.V.C.}$ = 0.012
T initial = 15 Minutes Maximum
*Show formula

From M.H. or D.P.#	To M.H. OR D.P.#	Increment Acres "A"	"C"	Equivalent Area 100% Acres CA	Total Area 100% Acres CA	T Time Min.	I inches per hour	Q c.f.s. C.I.A.	Diameter of pipe in.	Slope pipe ft./ft.	Slope H.G.	Length of line ft.	Velocity flow full ft./sec.	Time of flow min.	Capacity of sewer c.f.s.	H.G Elevation Upper End	H.G Elevation Lower End	Ground Elevation Upper end	Ground Elevation Lower end	Invert Elevation Upper end	Invert Elevation Lower end	Upper "Rim-H.G." ≥ 2.5'
C.B. #1	C.B. #2	0.43	0.72	0.31	0.31	15.00	4.35	1.35	12"	0.0040	0.0014	105	2.87	0.61	2.25	689.63	689.48	693.00	692.50	688.90	688.46	3.40
C.B. #3	C.B. #2	0.33	0.56	0.18	0.18	15.00	4.35	0.78	12"	0.0040	0.0005	36	2.87	0.21	2.25	689.46	689.44	693.00	692.50	689.00	688.86	3.54
C.B. #2	TREAT. STRC.	0.47	0.31	0.15	0.64	15.61	4.27	2.73	15"	0.0080	0.0018	11	4.71	0.04	5.78	689.44	689.42	692.50	693.30	688.26	688.17	3.06
TREAT. STRC.	U.G. DET.	–	–	–	–	–	–	2.73	15"	0.0080	0.0018	12	4.71	0.04	5.78	689.26	689.24	693.30	694.00	688.09	687.99	4.04
U.G. DET.	OUT. STRC.	–	–	–	0.64	15.69	4.26	2.73	12"	0.0080	0.0059	60	4.06	0.25	3.19	688.83	688.48	694.00	694.50	687.96	687.48	5.17

*–INDICATES RESTRICTED DISCHARGE



Typical Bioretention Cross-Section
N.T.S.



BIORETENTION OVERFLOW STRUCTURE
(SHOWN AS O.S. ON PLANS)
*UNDERDRAIN PIPE SHOULD NOT BE PERFORATED WITHIN 5 FT. OF THE OVERFLOW STRUCTURE

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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

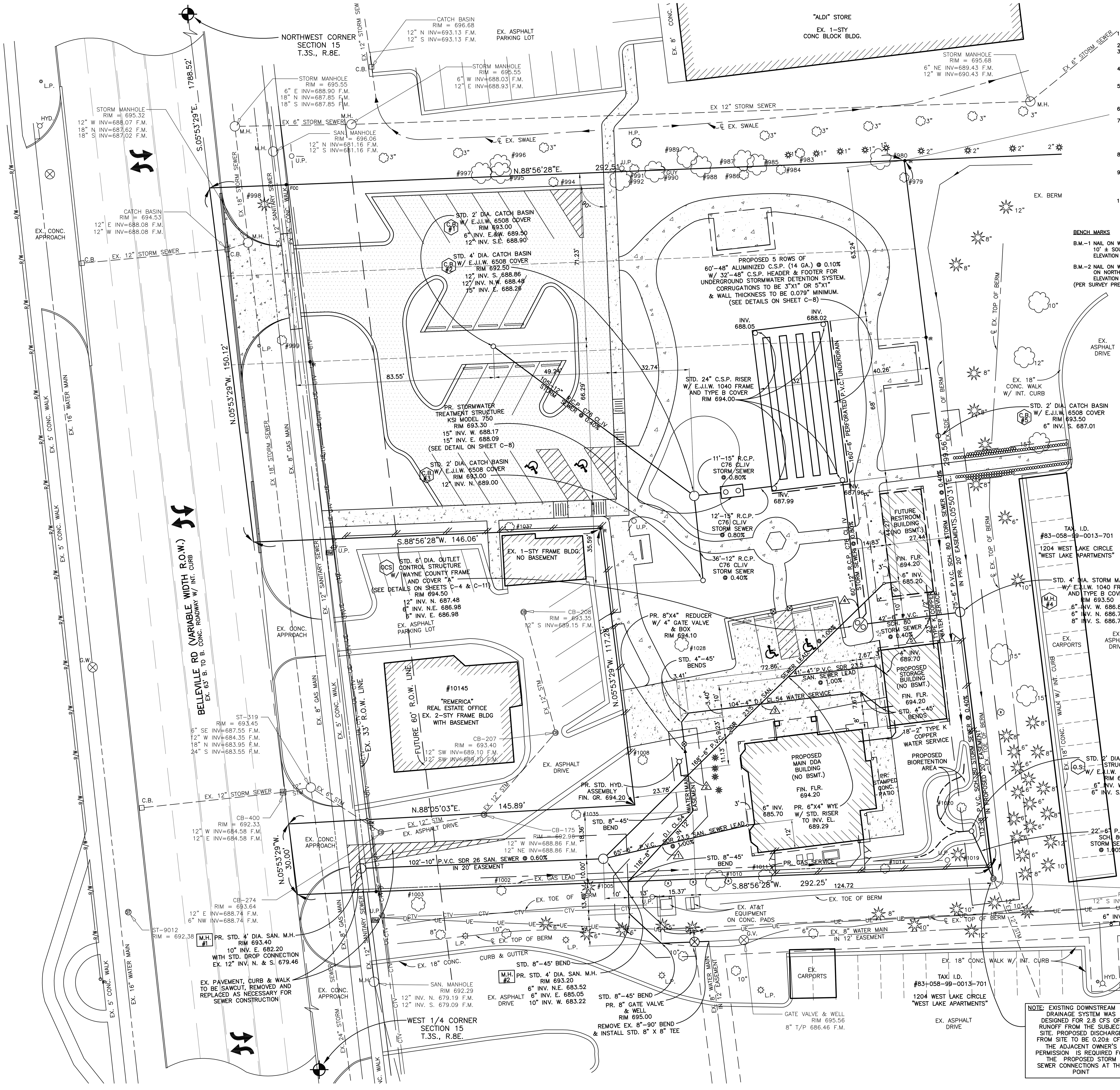
SITE STORMWATER DRAINAGE PLAN

- PRELIMINARY ☐
- DESIGN DEVELOPMENT ☐
- CONSTRUCTION ■
- FINAL RECORD ☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 05/21/18
SHEET NO.: C-4
JOB NO.: 161675



NOTE: EXISTING DOWNSTREAM DRAINAGE SYSTEM WAS DESIGNED FOR 2.8 CFS OF RUNOFF FROM THE SUBJECT SITE. PROPOSED DISCHARGE FROM SITE TO BE 0.20± CFS. THE ADJACENT OWNER'S PERMISSION IS REQUIRED FOR THE PROPOSED STORM SEWER CONNECTIONS AT THIS POINT

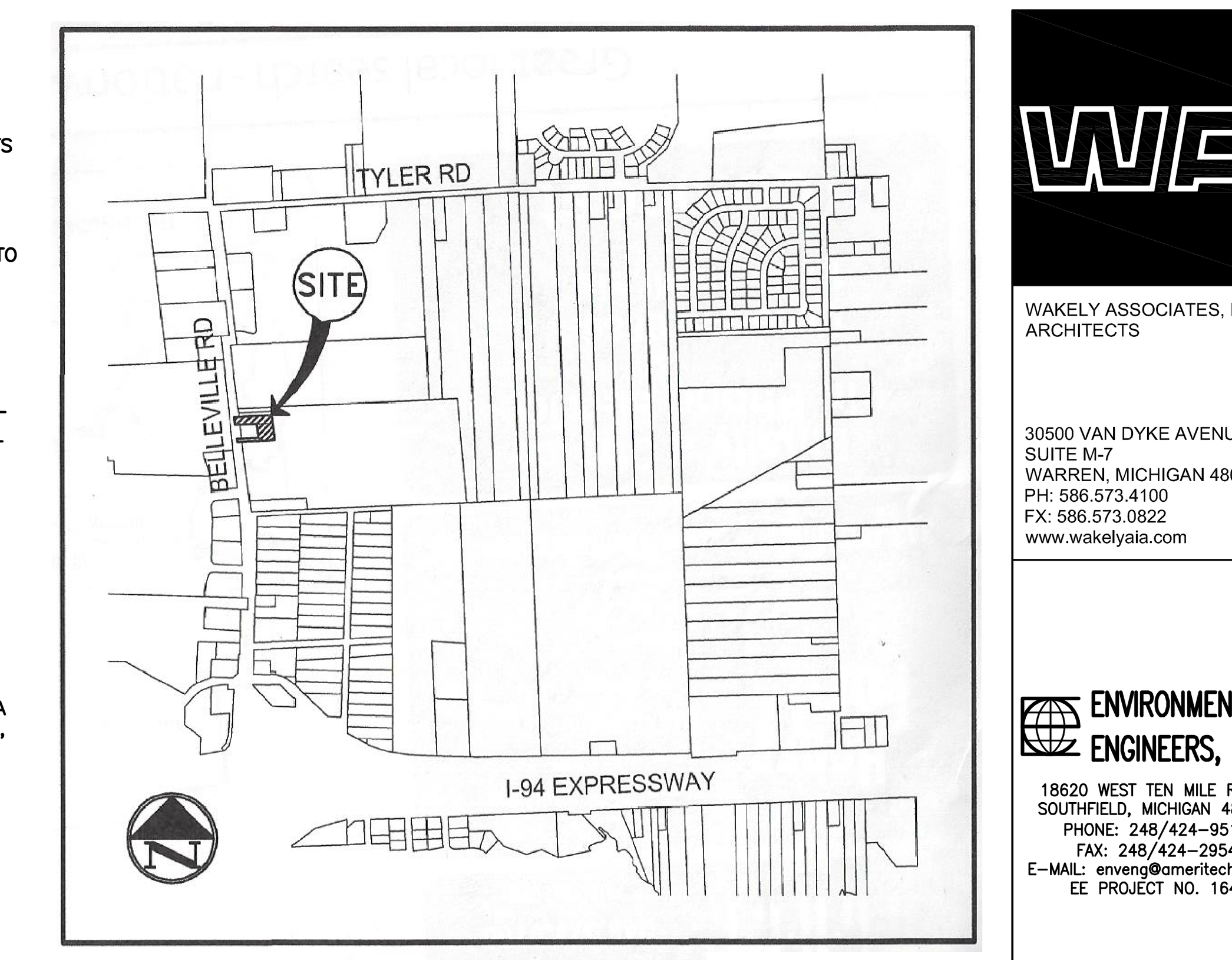
GENERAL NOTES

1.) ALL SIGNS SHALL CONFORM TO VAN BUREN TOWNSHIP SIGN REGULATIONS.
2.) NO OUTDOOR STORAGE IS PROPOSED FOR THIS SITE.
3.) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL VAN BUREN TOWNSHIP PERMITS AND ANY OTHER PERMITS REQUIRED FOR CONSTRUCTION.
4.) ANY HAZARDOUS MATERIALS USED, STORED OR PROCESSED ON SITE WILL BE TO ALL APPLICABLE REGULATIONS.
5.) ALL SIGHT LIGHTING SHALL BE SHIELDED OR DIRECTED TO REMAIN WITHIN THE SITE BOUNDARIES, THIS SHALL INCLUDE SHIELDING FROM VIEW FROM OFFSITE THE HOT SPOT OF ALL LIGHTS.
6.) OWNER AGREES TO PICK UP DEBRIS ON PROPERTY AND BLOWING FROM PROPERTY WEEKLY OF AS NEEDED.
7.) OWNER AGREES PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES AND SURFACES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED. PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION.
8.) THE DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH ARE A RESULT OF THE DEVELOPER'S ACTIVITIES.
9.) OWNER AGREES TO SEASONAL MAINTENANCE PROGRAM AND WILL REPLACE ALL DISEASED, DEAD OR DAMAGED PLANTS, REPLENISH MULCH, CONTROL WEEDS, FERTILIZE AND PRUNE BEGINNING UPON COMPLETION OF CONSTRUCTION OF LANDSCAPING.
10.) THE APPLICANT SHALL KEEP THE GATE BETWEEN THE REAL ESTATE OFFICE AND THE ADDITIONAL PARKING AREA FOR THE DDA BUILDING OPEN DURING BUSINESS HOURS, PUBLIC MEETINGS AND DDA EVENTS.

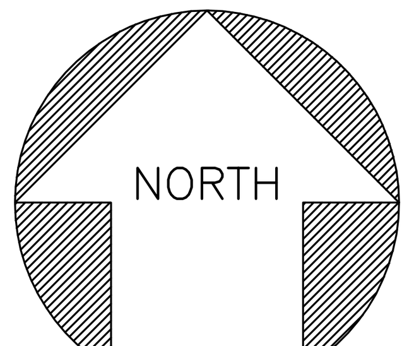
BENCH MARKS

B.M.-1 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, 10' ± SOUTH OF SOUTHWEST CORNER OF SITE. ELEVATION 694.18 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)

B.M.-2 NAIL ON WEST SIDE UTILITY POLE, EAST SIDE BELLEVILLE RD, ON NORTH LINE OF REMAX SITE. ELEVATION 696.15 NAVD 88 (ADD 0.44 FT. FOR NGVD 29)
(PER SURVEY PREPARED BY WADE TRIM GROUPS DATED 8/25/16)



LOCATION MAP
NOT TO SCALE



SCALE:
1"=20'
0 10 20 40

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES NOTES

A.) ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES.
B.) THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN ROAD RIGHTS-OF-WAY, PARKS, DRAIN EASEMENTS OR SANITARY SEWER UNDER THE JURISDICTION OF WAYNE COUNTY (07/01/93) REVISED (12/15/04).
C.) RESTORE ALL DISTURBED AREAS UNDER WAYNE COUNTY RIGHT-OF-WAY WITH 3" TOPSOIL AND CLASS "A" HYDROSEED. SLOPES STEEPER THAN 1:3 SHALL BE RESTORED BY PLACING SOD.
D.) MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE M.M.U.T.C.D.
E.) CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT MR. PAUL POLKOWSKI AT (734) 595-6504 EXTENSION 2009.
F.) CONTRACTOR SHALL OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DOE.
G.) REPLACE, RESTORE AND RELOCATE ALL TRAFFIC SIGNS THAT ARE AFFECTED BY THIS CONSTRUCTION AS DIRECTED BY THE COUNTY ENGINEER

PROPOSED SITE UTILITIES CROSSINGS DATA

1 PR. 6" SANITARY SEWER INV. 685.28 & PR. 8" WATER MAIN T/P 688.10
2 PR. 6" SANITARY SEWER INV. 684.00 & PR. 8" WATER MAIN T/P 687.60
3 PR. 6" SANITARY SEWER INV. 684.42 & PR. 4" WATER SERVICE T/P 688.00 *
4 PR. 6" SANITARY SEWER INV. 685.02 & PR. 12" STORM SEWER INV. 687.54
5 * PR. 6" STORM SEWER INV. 686.86 & PR. 1-1/2" WATER SERVICE T/P 685.30

* - AREAS WHERE WATER LINE MUST BE LOWERED TO MAINTAIN 18" CLEARANCE

LEGEND

× 694.00		- EXISTING ELEVATION
+ 94.00		- PROPOSED ELEVATION (ADD 600 FEET)
—694—		- EXISTING CONTOUR
—94—		- PROPOSED CONTOUR (ADD 600 FEET)
	U.P.	- UTILITY POLE
	L.P.	- LIGHT POLE
	GUY	- GUY WIRE
	T.S.	- TRAFFIC SIGN
	W.S.O.	- WATER SHUT-OFF
	G.S.O.	- GAS SHUT-OFF
	B.P.	- BUMPER POST
	A.M.	- AMERITECH MARKER
	A.P.	- AMERITECH PEDESTAL
	B1	- SOIL BORING LOCATION

CONSTRUCTION NOTES

1.) ALL SITE CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF VAN BUREN TOWNSHIP & WAYNE COUNTY.
2.) ALL CONSTRUCTION WITHIN BELLEVILLE ROAD R.O.W. SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES. W.C.D.P.S. PERMIT IS REQUIRED.
3.) ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ONSITE. A S.E.S.C. PERMIT IS REQUIRED FROM THE WAYNE COUNTY DEPT. OF THE ENVIRONMENT. ALL TOPSOIL WITHIN THE PROPOSED CONSTRUCTION AREA SHALL BE STRIPPED AND STOCKPILED PRIOR TO THE START OF ANY GRADING AND UTILITIES WORK. ANY SITE FILLING DONE DURING MASS GRADING SHALL UTILIZE CLEAN SOIL, FREE OF ANY VEGETATION OR ORGANIC MATERIALS. ALL FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST. ALL EXCAVATION UNDER OR WITHIN 6 FEET OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL. ALL DISTURBED AREAS WHICH ARE UNPAVED ARE TO BE STABILIZED WITH 4" TOPSOIL, SEED AND MULCH (OR SOD) AS SOON AS FINAL GRADING IS COMPLETE.
4.) ALL WATER MAIN AND SERVICE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP WATER MAIN DETAIL SHEETS AND SHALL HAVE 6 FOOT MINIMUM COVER. A MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
5.) ALL SANITARY SEWER AND LEAD CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP SANITARY SEWER DETAIL SHEET. A MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY PERMIT IS REQUIRED.
6.) ALL STORM SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VAN BUREN TOWNSHIP STORM SEWER DETAIL SHEET. RUBBER GASKET JOINTS ARE REQUIRED FOR ALL STORM SEWER. THE PIPE BEDDING SHOULD BE MAXIMUM 3/4-INCH DIAMETER CRUSHED STONE.
8.) THE PROPOSED GRADES SHOWN WITHIN PAVEMENT AREAS ARE FINISHED PAVEMENT GRADES. SEE CONCRETE CURB AND GUTTER DETAIL OR CONCRETE WALK WITH INTEGRAL CURB DETAIL WHERE APPLICABLE. THE PROPOSED ONSITE CONCRETE DRIVES & WALKS SHALL BE AS SHOWN ON THE PAVEMENT DETAILS ON SHEET C-5. THE PROPOSED ONSITE ASPHALT PAVING SHALL BE:
3-1/2" - M.D.O.T. No. 1100 BITUMINOUS MIX ON
6" - M.D.O.T. No. 21AA AGGREGATE BASE

PROPOSED STORM SEWER QUANTITIES

364 L.F. - 48" ALUMINIZED C.S.P. (14 GA.) STORM SEWER
23 L.F. - 15" R.C.P. C76 CL. IV STORM SEWER
201 L.F. - 12" R.C.P. C76 CL. IV STORM SEWER
113 L.F. - 8" P.V.C. SCH. 80 STORM SEWER
139 L.F. - 6" P.V.C. SCH. 80 STORM SEWER
227 L.F. - 6" P.V.C. UNDERDRAIN
1 EA. - STD. 6' DIA. OUTLET CONTROL STRUCTURE
1 EA. - STD. 2' DIA. OVERFLOW STRUCTURE
1 EA. - STD. 4' DIA. STORM MANHOLE
1 EA. - STD. 4' DIA. CATCH BASIN
3 EA. - STD. 2' DIA. CATCH BASIN

PROPOSED WATER SERVICE QUANTITIES

104 L.F. - 4" D.I. CL. 54 WATER SERVICE
1 EA. - 8"x4" REDUCER W/ 4" GATE VALVE AND BOX
18 L.F. - 2" TYPE K COPPER WATER SERVICE
23 L.F. - 1-1/2" TYPE K COPPER WATER SERVICE

PROPOSED PUBLIC WATER MAIN QUANTITIES

118 L.F. - 8" D.I. CL. 54 WATER MAIN
1 EA. - STD. HYDRANT ASSEMBLY
1 EA. - GATE VALVE AND WELL

NOTE: PORTIONS OF EXISTING SITE BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN FROM SURVEY PREPARED BY WADE TRIM GROUPS, INC. DATED 8/25/16 AND PROVIDED BY CLIENT.

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39674
LICENSED PROFESSIONAL ENGINEER

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PHONE: 248/424-9510
FAX: 248/424-2954
E-MAIL: enveng@ameritech.net
EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

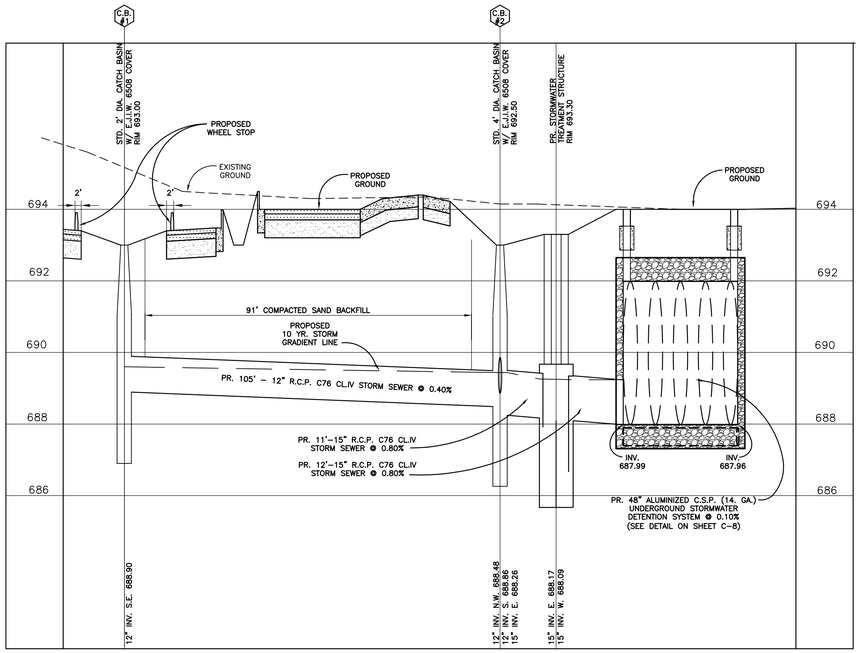
SITE
UTILITIES
PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: RM
CHECKED BY: PL

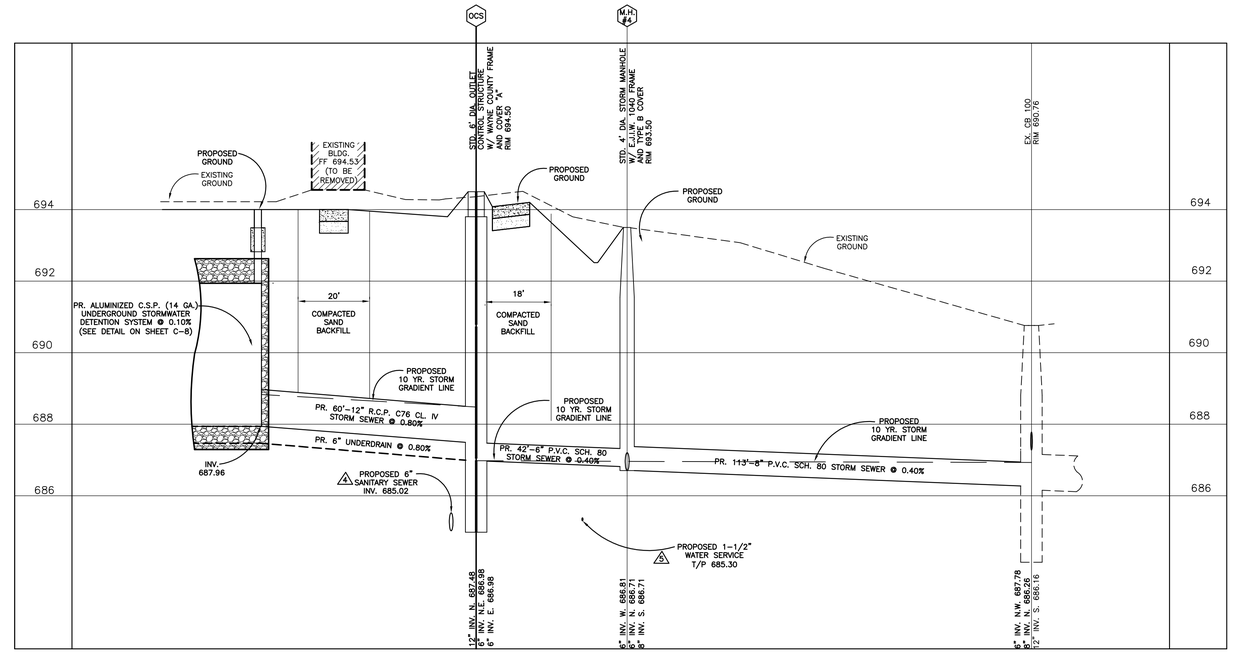
REVISIONS:
03/21/18 - CONSTRUCTION SET
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 08/25/17
SHEET NO.: C-5
JOB NO.: 161675



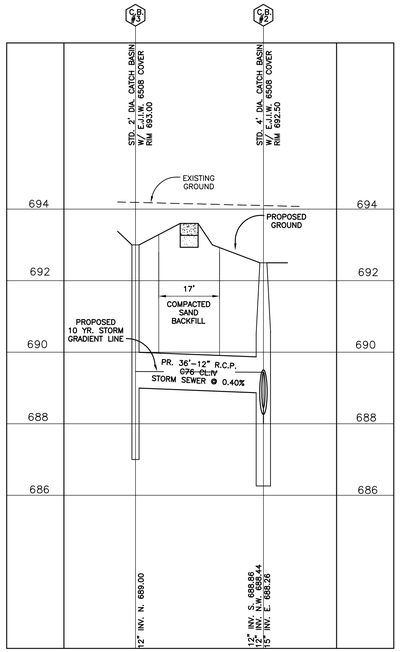
WEST STORM LINE PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL



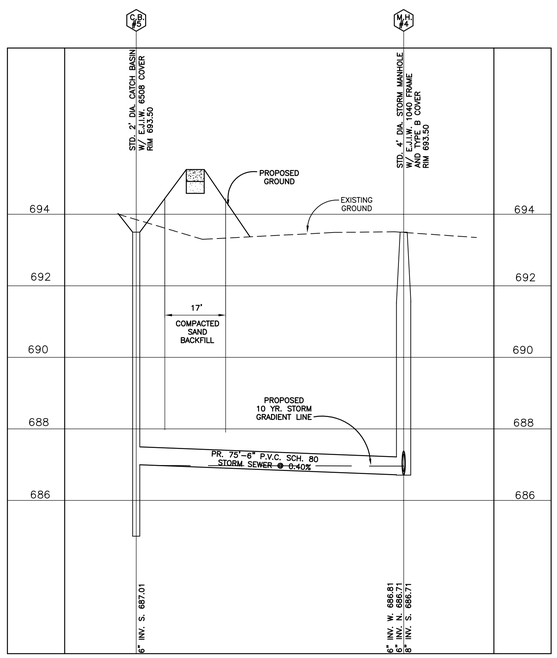
EAST STORM LINE PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL



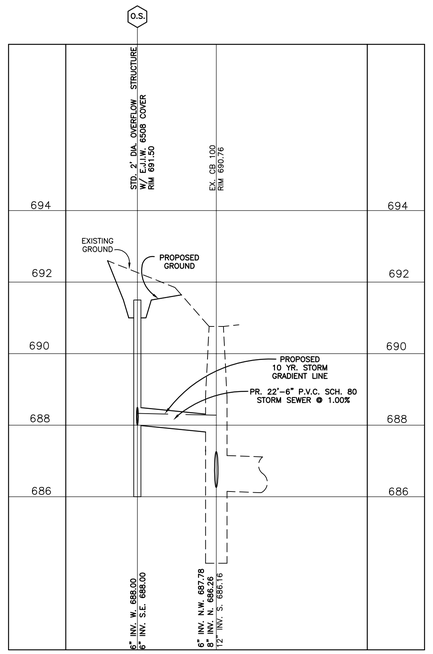
SOUTHWEST STORM LINE PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL



NORTHEAST STORM LINE PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL



SOUTHEAST STORM LINE PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL

PROPOSED STORM SEWER QUANTITIES

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201 L.F. – 12" R.C.P. C76 CL. IV STORM SEWER
113 L.F. – 8" P.V.C. SCH. 80 STORM SEWER
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VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE STORM SEWER PROFILES

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 05/21/18
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STATE OF MICHIGAN
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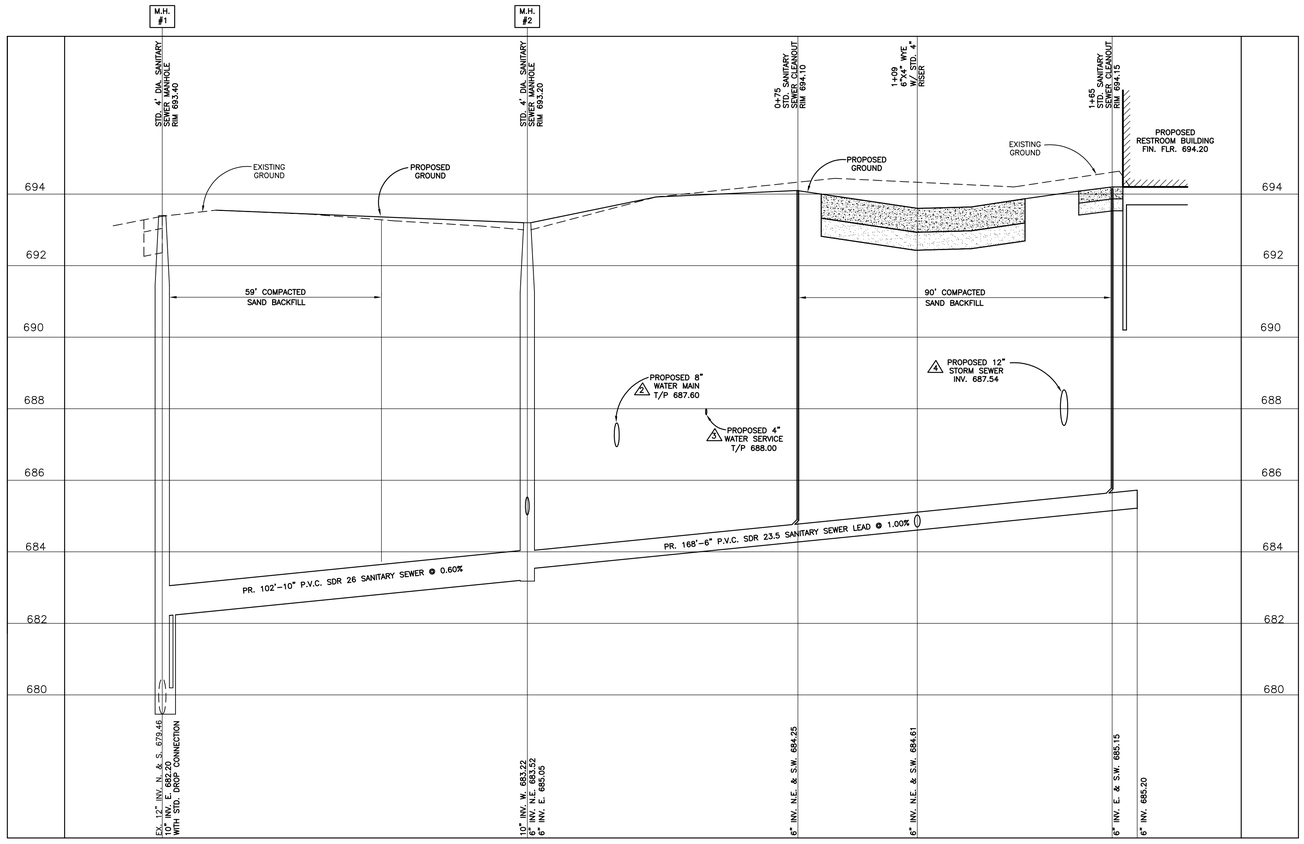
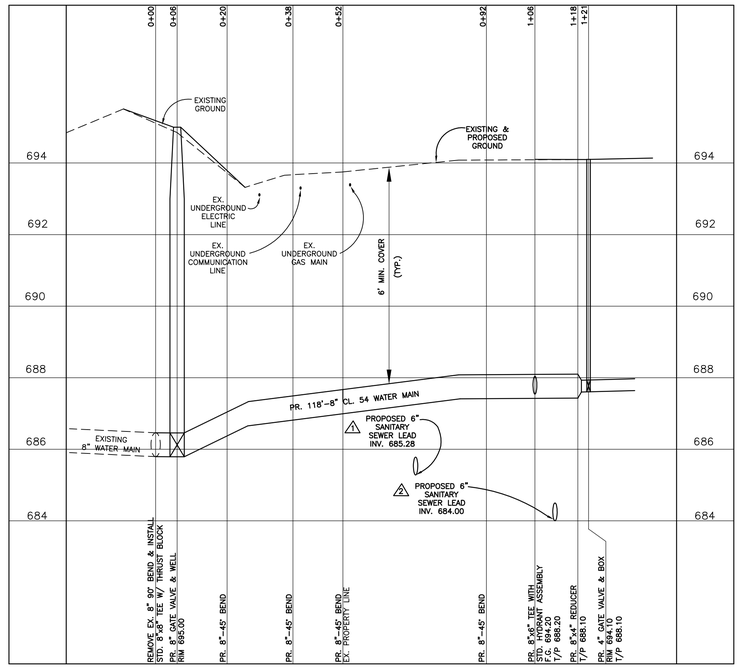


SANITARY SEWER PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL



WATER MAIN PROFILE

SCALE: 1"=20' HORIZONTAL
1"=2' VERTICAL

SANITARY SEWER BASIS OF DESIGN

SANITARY SEWERS IN COMMERCIAL & INDUSTRIAL AREAS TO BE DESIGNED BASED ON AVERAGE DAILY FLOW OF 940 GPD/ACRE OF NET SITE AREA IN ACCORDANCE WITH VAN BUREN TOWNSHIP REQUIREMENTS.

940 GPD/ACRE x 1.471 ACRES = 1,383 GPD AVERAGE FLOW

$$\frac{18 + \sqrt{\frac{1,383/100}{1,000}}}{4 + \sqrt{\frac{1,383/100}{1,000}}} \times 1.383 = 6,085 \text{ GPD PEAK FLOW}$$

CAPACITY OF PROPOSED 10" P.V.C. SDR 35 SANITARY SEWER @ 0.60% IS 1.6971 CFS OR 1,096,724 GPD

PROPOSED PUBLIC SANITARY SEWER QUANTITIES

102 L.F. – 10" P.V.C. SDR 26 SANITARY SEWER
2 EA. – STD. 4' DIA. SANITARY SEWER MANHOLE

PROPOSED SANITARY SEWER LEAD QUANTITIES

233 L.F. – 6" P.V.C. SDR 23.5 SANITARY SEWER LEAD
41 L.F. – 4" P.V.C. SDR 23.5 SANITARY SEWER LEAD
4 EA. – STD. SANITARY SEWER CLEANOUT

PROPOSED WATER SERVICE QUANTITIES

104 L.F. – 4" D.I. CL. 54 WATER SERVICE
1 EA. – 8"x4" REDUCER W/ 4" GATE VALVE AND BOX
18 L.F. – 2" TYPE K COPPER WATER SERVICE
23 L.F. – 1-1/2" TYPE K COPPER WATER SERVICE

PROPOSED PUBLIC WATER MAIN QUANTITIES

118 L.F. – 8" D.I. CL. 54 WATER MAIN
1 EA. – STD. HYDRANT ASSEMBLY
1 EA. – GATE VALVE AND WELL

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39074
LICENSED PROFESSIONAL ENGINEER

811 Know what's below. Call before you dig.

WAKELY ASSOCIATES, INC.
ARCHITECTS

30500 VAN DYKE AVENUE
SUITE M-7
WARREN, MICHIGAN 48093
PH: 586.573.4100
FX: 586.573.0822
www.wakelyaia.com

ENVIRONMENTAL ENGINEERS, INC.
18620 WEST TEN MILE ROAD
SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510
FAX: 248/424-2954
E-MAIL: enveng@ameritech.net
EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE SANITARY & WATER MAIN PROFILES

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

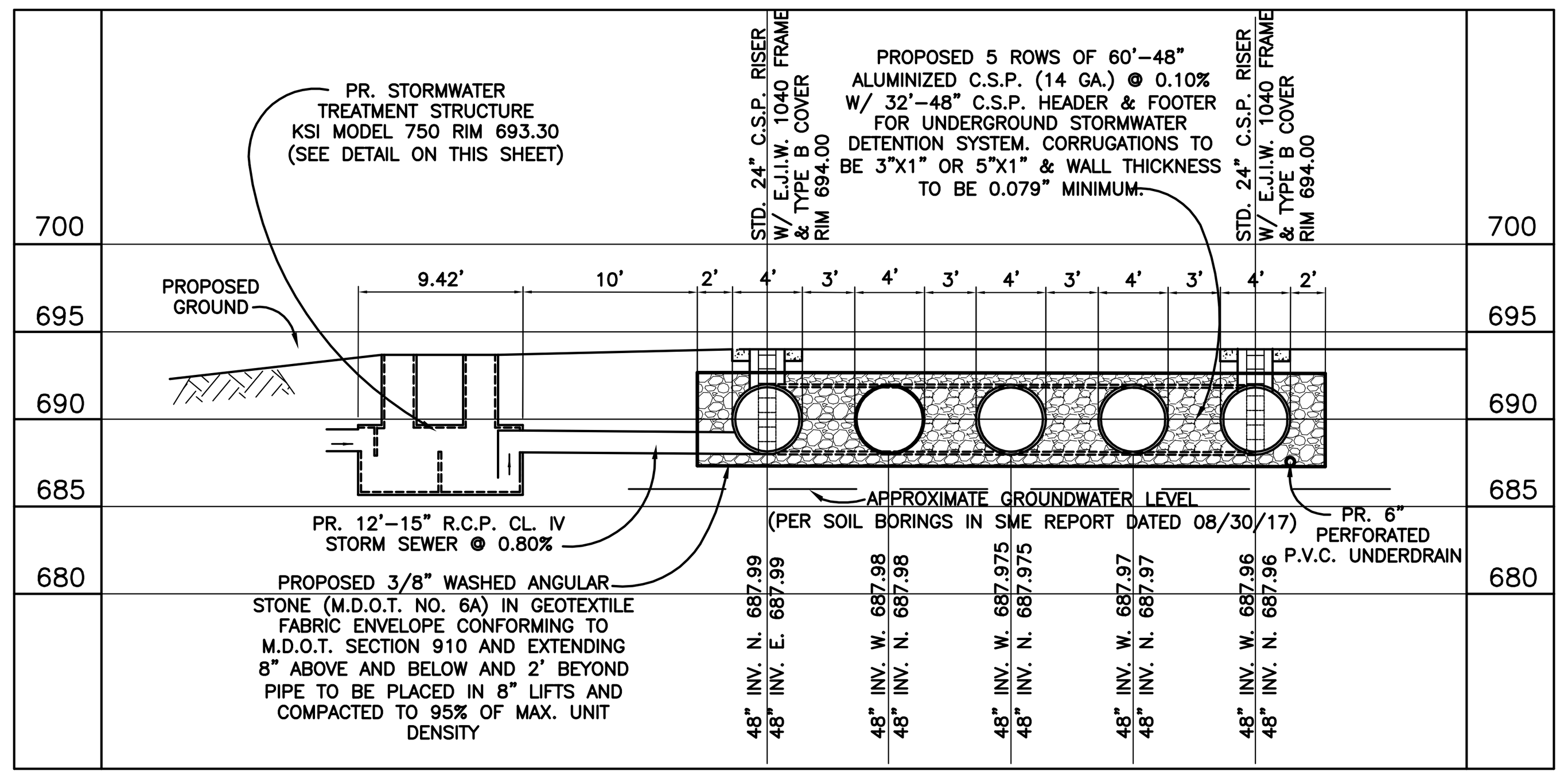
DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 05/21/18

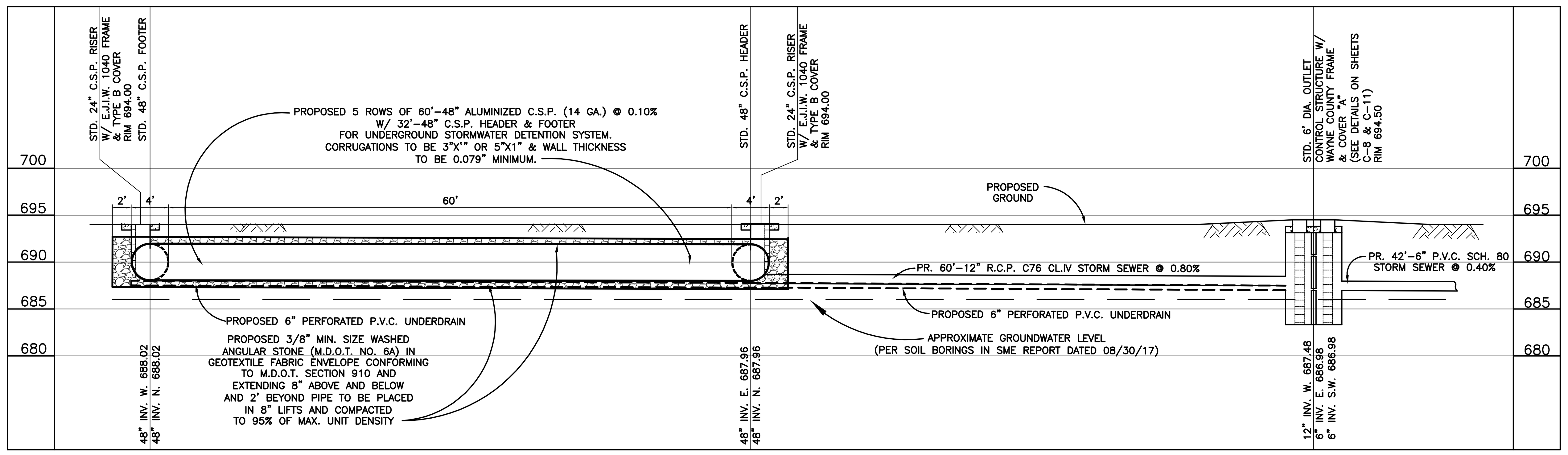
SHEET NO.: C-7

JOB NO.: 161675


PR. STORMWATER TREATMENT STRUCTURE KSI MODEL 750 RIM 693.30 (SEE DETAIL ON THIS SHEET)
PROPOSED 5 ROWS OF 60"-48" ALUMINIZED C.S.P. (14 GA.) @ 0.10% W/ 32"-48" C.S.P. HEADER & FOOTER FOR UNDERGROUND STORMWATER DETENTION SYSTEM. CORRUGATIONS TO BE 3"X1" OR 5"X1" & WALL THICKNESS TO BE 0.079" MINIMUM.
PROPOSED GROUND
APPROXIMATE GROUNDWATER LEVEL (PER SOIL BORINGS IN SME REPORT DATED 08/30/17)
PR. 12"-15" R.C.P. CL. IV STORM SEWER @ 0.80%
PR. 6" PERFORATED P.V.C. UNDERDRAIN
PROPOSED 3/8" WASHED ANGULAR STONE (M.D.O.T. NO. 6A) IN GEOTEXTILE FABRIC ENVELOPE CONFORMING TO M.D.O.T. SECTION 910 AND EXTENDING 8" ABOVE AND BELOW AND 2' BEYOND PIPE TO BE PLACED IN 8" LIFTS AND COMPACTED TO 95% OF MAX. UNIT DENSITY
700
695
690
685
680

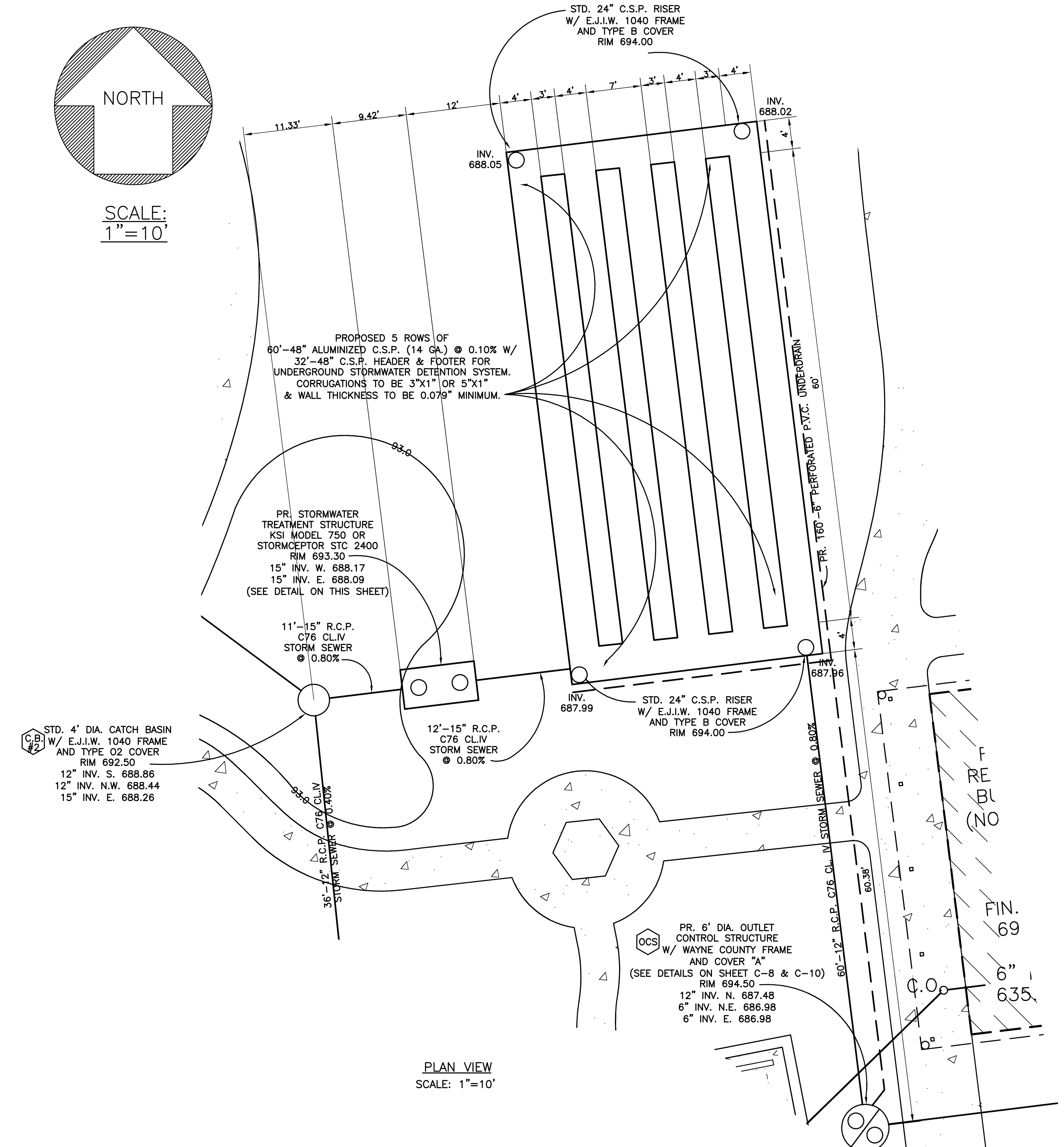
UNDERGROUND STORMWATER DETENTION SECTION A–A

SCALE: 1"=10'


PROPOSED 5 ROWS OF 60"-48" ALUMINIZED C.S.P. (14 GA.) @ 0.10% W/ 32"-48" C.S.P. HEADER & FOOTER FOR UNDERGROUND STORMWATER DETENTION SYSTEM. CORRUGATIONS TO BE 3"X1" OR 5"X1" & WALL THICKNESS TO BE 0.079" MINIMUM.
PROPOSED GROUND
PR. 60'-12" R.C.P. C76 CL.IV STORM SEWER @ 0.80%
PR. 42'-6" P.V.C. SCH. 80 STORM SEWER @ 0.40%
PROPOSED 6" PERFORATED P.V.C. UNDERDRAIN
APPROXIMATE GROUNDWATER LEVEL (PER SOIL BORINGS IN SME REPORT DATED 08/30/17)
PROPOSED 3/8" MIN. SIZE WASHED ANGULAR STONE (M.D.O.T. NO. 6A) IN GEOTEXTILE FABRIC ENVELOPE CONFORMING TO M.D.O.T. SECTION 910 AND EXTENDING 8" ABOVE AND BELOW AND 2' BEYOND PIPE TO BE PLACED IN 8" LIFTS AND COMPACTED TO 95% OF MAX. UNIT DENSITY

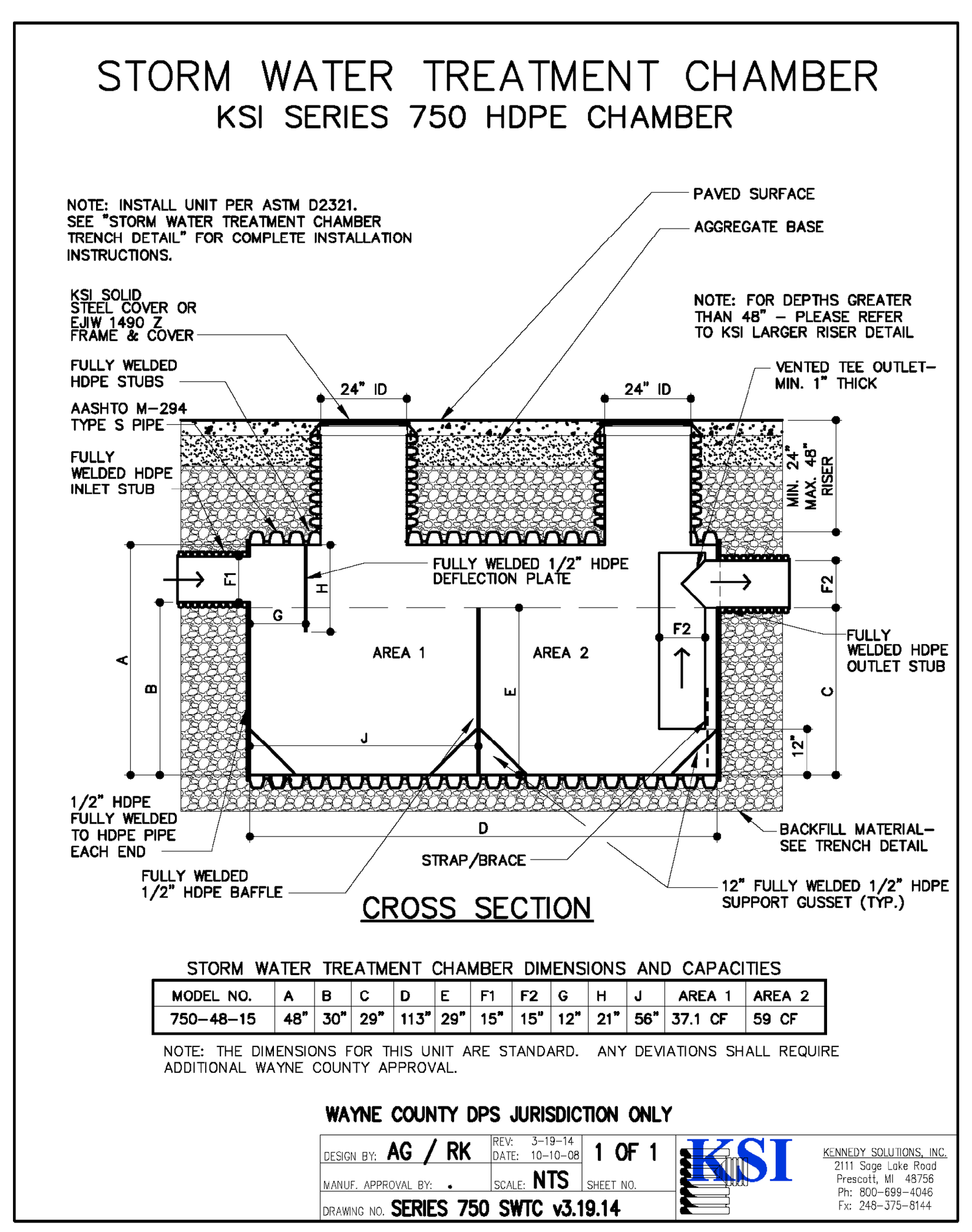
UNDERGROUND STORMWATER DETENTION SECTION B–B

SCALE: 1"=10'

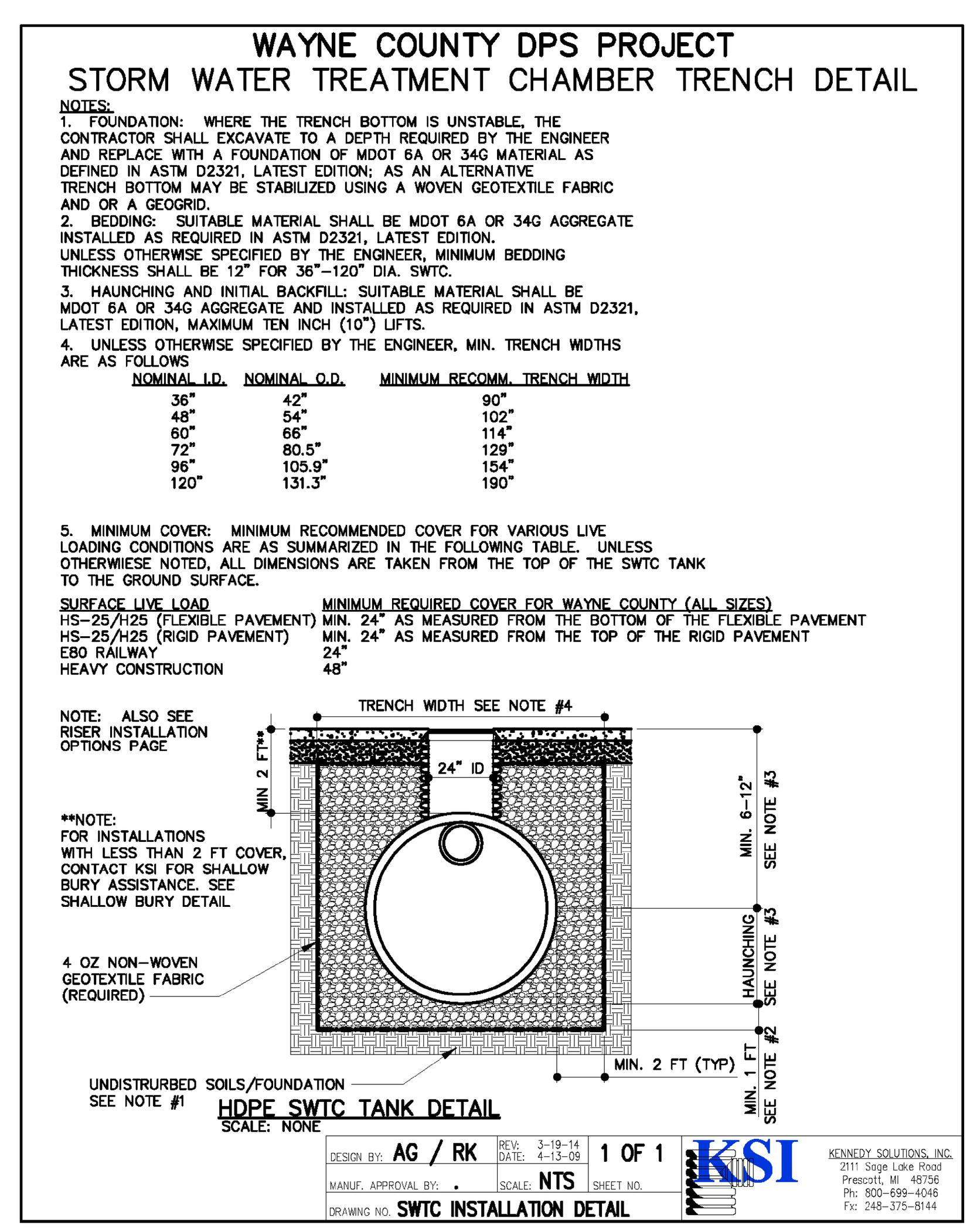

NORTH
SCALE: 1"=10'
STD. 24" C.S.P. RISER W/ E.J.I.W. 1040 FRAME AND TYPE B COVER RIM 694.00
PROPOSED 5 ROWS OF 60"-48" ALUMINIZED C.S.P. (14 GA.) @ 0.10% W/ 32"-48" C.S.P. HEADER & FOOTER FOR UNDERGROUND STORMWATER DETENTION SYSTEM. CORRUGATIONS TO BE 3"X1" OR 5"X1" & WALL THICKNESS TO BE 0.079" MINIMUM.
PR. STORMWATER TREATMENT STRUCTURE KSI MODEL 750 OR STORMCEPTOR STC 2400 RIM 693.30 15" INV. W. 688.17 15" INV. E. 688.09 (SEE DETAIL ON THIS SHEET)
11'-15" R.C.P. C76 CL.IV STORM SEWER @ 0.80%
STD. 4' DIA. CATCH BASIN W/ E.J.I.W. 1040 FRAME AND TYPE 02 COVER RIM 692.50 12" INV. S. 688.86 12" INV. N.W. 688.44 15" INV. E. 688.26
12"-15" R.C.P. C76 CL.IV STORM SEWER @ 0.80%
STD. 24" C.S.P. RISER W/ E.J.I.W. 1040 FRAME AND TYPE B COVER RIM 694.00
PR. 6' DIA. OUTLET CONTROL STRUCTURE W/ WAYNE COUNTY FRAME AND COVER "A" (SEE DETAILS ON SHEET C-8 & C-10) RIM 694.50 12" INV. N. 687.48 6" INV. N.E. 686.98 6" INV. E. 686.98

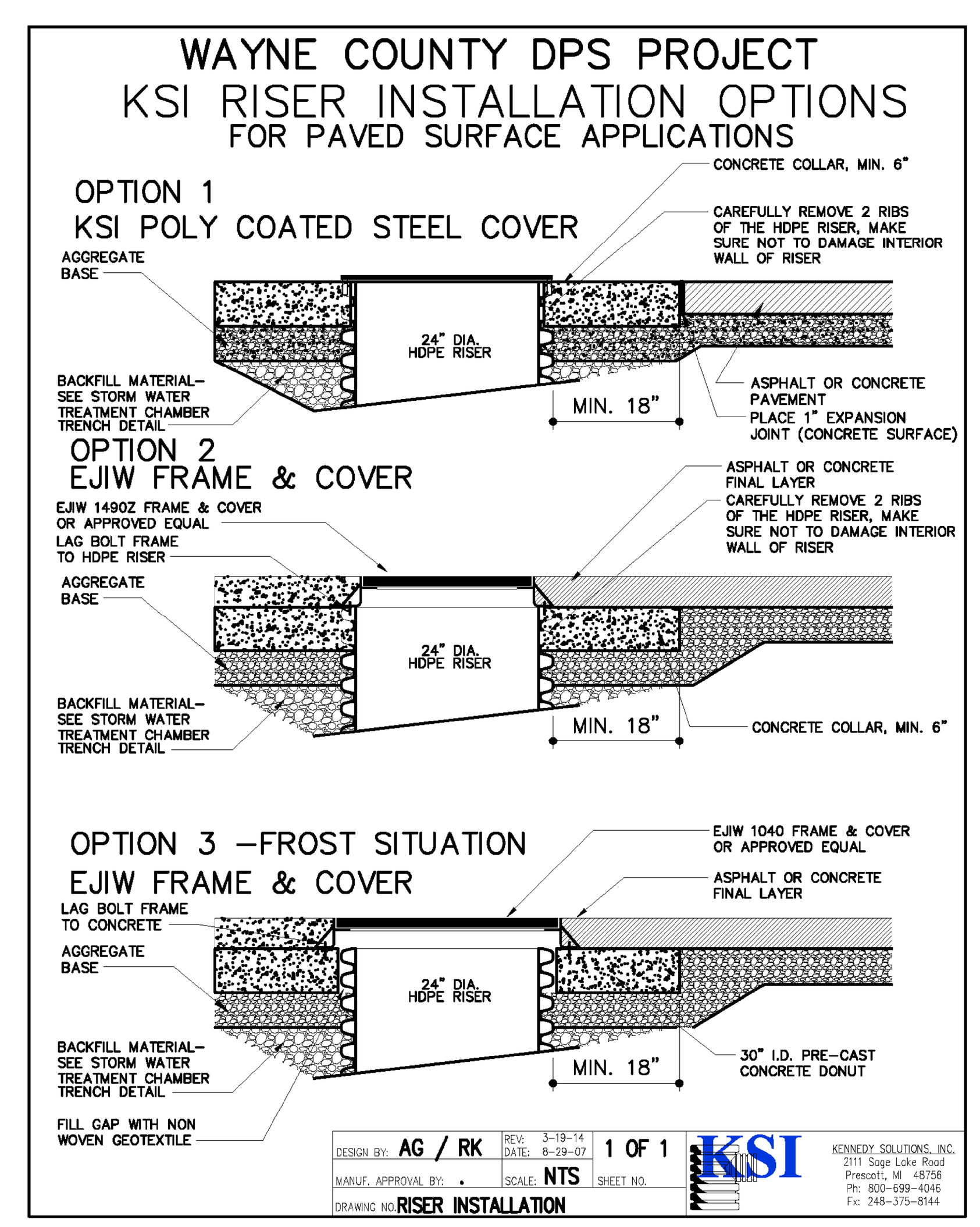
PLAN VIEW

SCALE: 1"=10'



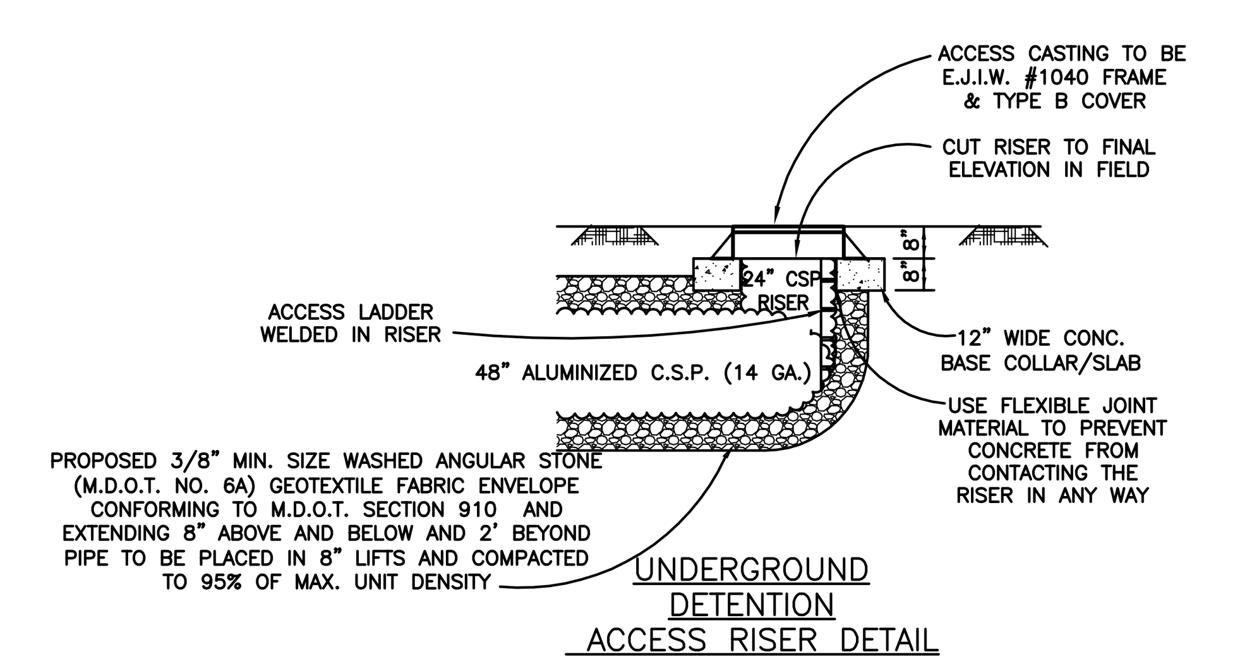
NOTE: THE MANUFACTURER OF THE STORM WATER TREATMENT STRUCTURE MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734)595-6504 EXT. 2105 AT LEAST 3 WORKING DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION.





WAYNE COUNTY CMP DETENTION NOTES

1. CIRCULAR CMP SHOULD CONFORM TO AASHTO M36 (ASTM A760) AND SHOULD BE MADE FROM ALUMINUM COATED SHEET CONFORMING TO AASHTO M274. THE USE OF CONTINUOUS WELDED SEAM PROCESS IN THE FABRICATION OF THE PIPE IS NOT PERMITTED.
2. 60" DIAMETER CMP WITH 2-2/3"X1/2" CORRUGATION MUST HAVE 0.109" THICK WALL – 12 GAUGE (0.079" THICK, 14 GAUGE FOR 3"X1" OR 5"X1" CORRUGATIONS). PIPES SMALLER THAN 60" MUST BE 0.079" THICK, 14 GAUGE FOR ANY CORRUGATION SIZE.
3. ALL WELDS FOR ALUMINIZED PIPE SHOULD BE COATED WITH A PAINT CONTAINING ZINC DUST AS DESCRIBED IN THE MATERIAL SECTION OF ASTM A780 AND SHOULD BE APPLIED TO A DRY FILM THICKNESS OF AT LEAST 0.005 INCH. ANY REPAIR TO DAMAGED ALUMINIZED COATING SHOULD BE IN ACCORDANCE WITH ASTM A760 SECTION 11.
4. WELDING ON SITE IS NOT PERMITTED UNLESS APPROVED BY THE COUNTY PERMIT ENGINEER, AND CMP CONNECTIONS SHOULD BE PER MANUFACTURER'S RECOMMENDATIONS.
5. CMP DETENTION PIPES REQUIRE 2G, 34G, 6A OR 21AA STONE OR GRAVEL BACKFILL (NO CRUSHED CONCRETE) TO A MINIMUM 6" ABOVE TOP OF THE PIPES. THE ENTIRE UNDERGROUND DETENTION SYSTEM SHALL BE ENVELOPED WITH GEOTEXTILE FABRIC CONFORMING TO M.D.O.T. SECTION 910. COVER SHALL BE 12" MINIMUM TO BOTTOM OF THE PAVEMENT SYSTEM.
6. THE MANUFACTURER OF THE CMP PIPES MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734)595-6504 EXT. 2015 AT LEAST 72 HOURS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION.
7. A WAYNE COUNTY PERMIT ENGINEER MUST OBSERVE INSTALLATION OF ALL COMPONENTS OF THE UNDERGROUND DETENTION SYSTEM, MANUFACTURED TREATMENT SYSTEM, OUTLET CONTROL STRUCTURE, AND OUTLET PIPES. CONTRACTOR MUST CONTACT THE WAYNE COUNTY PERMIT OFFICE AT (734) 595-6504 EXT. 2009 AT LEAST 3 WORKING DAYS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION DURING CONSTRUCTION.


ACCESS CASTING TO BE E.J.I.W. #1040 FRAME & TYPE B COVER
CUT RISER TO FINAL ELEVATION IN FIELD
ACCESS LADDER WELDED IN RISER
48" ALUMINIZED C.S.P. (14 GA.)
12" WIDE CONC. BASE COLLAR/SLAB
USE FLEXIBLE JOINT MATERIAL TO PREVENT CONCRETE FROM CONTACTING THE RISER IN ANY WAY
PROPOSED 3/8" MIN. SIZE WASHED ANGULAR STONE (M.D.O.T. NO. 6A) GEOTEXTILE FABRIC ENVELOPE CONFORMING TO M.D.O.T. SECTION 910 AND EXTENDING 8" ABOVE AND BELOW AND 2' BEYOND PIPE TO BE PLACED IN 8" LIFTS AND COMPACTED TO 95% OF MAX. UNIT DENSITY

UNDERGROUND DETENTION ACCESS RISER DETAIL

STATE OF MICHIGAN PAUL J. LEWSLEY ENGINEER No. 39974 LICENSED PROFESSIONAL ENGINEER

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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE STORMWATER DETENTION DETAILS

- PRELIMINARY ☐
- DESIGN DEVELOPMENT ☐
- CONSTRUCTION ■
- FINAL RECORD ☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
05/21/18 - CONSTRUCTION SET
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09/25/18 - ISSUED FOR CONSTRUCTION SET

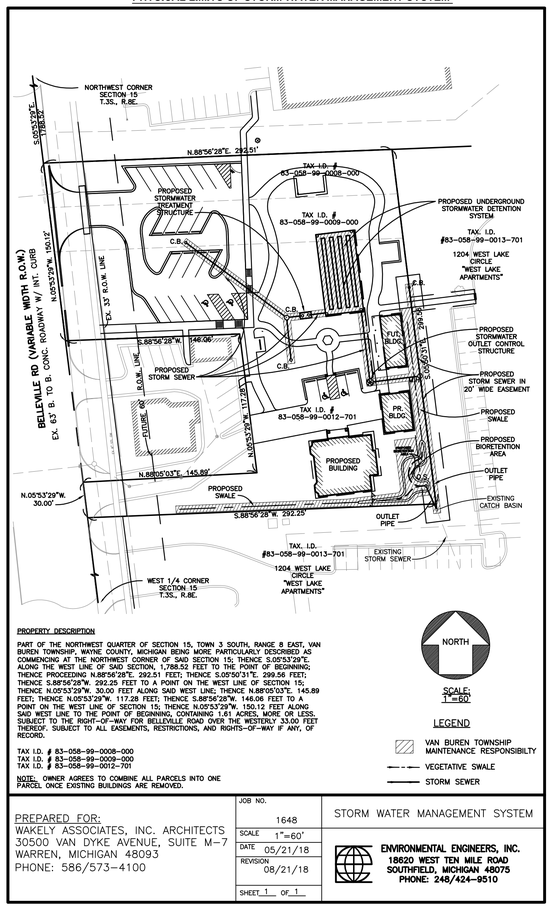
DATE: 05/21/18

SHEET NO.: C-8

JOB NO.: 161675

EXHIBIT A

PHYSICAL LIMITS OF STORM WATER MANAGEMENT SYSTEM



PROPERTY DESCRIPTION

PART OF THE NORTHWEST QUARTER OF SECTION 15, TOWN 3 SOUTH, RANGE 8 EAST, VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 15; THENCE S.05°53'29"E. ALONG THE WEST LINE OF SAID SECTION, 1,758.52 FEET TO THE POINT OF BEGINNING; THENCE PROCEEDING N.88°56'28"E. 292.51 FEET; THENCE S.05°50'31"E. 299.56 FEET; THENCE S.88°56'28"W. 292.25 FEET TO A POINT ON THE WEST LINE OF SECTION 15; THENCE N.05°53'29"W. 30.00 FEET ALONG SAID WEST LINE; THENCE N.88°05'03"E. 145.89 FEET; THENCE N.05°53'29"W. 117.28 FEET; THENCE S.88°56'28"W. 146.06 FEET TO A POINT ON THE WEST LINE OF SECTION 15; THENCE N.05°53'29"W. 150.12 FEET ALONG SAID WEST LINE TO THE POINT OF BEGINNING, CONTAINING 1.61 ACRES, MORE OR LESS. SUBJECT TO THE RIGHT-OF-WAY FOR BELLEVILLE ROAD OVER THE WESTERLY 33.00 FEET THEREOF. SUBJECT TO ALL EASEMENTS, RESTRICTIONS, AND RIGHTS-OF-WAY IF ANY, OF RECORD.

TAX I.D. # 83-058-99-0008-000
TAX I.D. # 83-058-99-0009-000
TAX I.D. # 83-058-99-0012-701

NOTE: OWNER AGREES TO COMBINE ALL PARCELS INTO ONE PARCEL ONCE EXISTING BUILDINGS ARE REMOVED.

PREPARED FOR:
WAKELY ASSOCIATES, INC. ARCHITECTS
30500 VAN DYKE AVENUE, SUITE M-7
WARREN, MICHIGAN 48093
PHONE: 586/573-4100

JOB NO.	1648
SCALE	1"=60'
DATE	05/21/18
REVISION	08/21/18
SHEET	1 OF 1

STORM WATER MANAGEMENT SYSTEM

ENVIRONMENTAL ENGINEERS, INC.
18620 WEST TEN MILE ROAD
SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510

EXHIBIT B

STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE PLAN

Wayne County DPS Permit No.: M-
Wayne County DPS Plan Review No.: R18-133

A. Physical Limits of the Storm Water Management System

The storm water management system (SWMS) subject to this long-term maintenance plan (Plan) is depicted on Exhibit A to the permit and includes without limitation the storm sewers, catch basins, manholes, inlets, swales, Bioretentions, buffer strips, mechanical forebay, underground detention system, outlet control structure and outlet pipe that conveys flow from the underground detention system to an existing storm catch basin located within the adjacent site. For the purposes of this plan, this storm water management system (SWMS) and all of its components as shown in Exhibit A is referred to as **Van Buren DDA Place Making SWMS**.

B. Time Frame for Long-Term Maintenance Responsibility

The Van Buren Township is responsible for maintaining the **Van Buren DDA Place Making SWMS**, including complying with applicable requirements of the local or Wayne County soil erosion and sedimentation control program until Wayne County releases the construction permit. Long-term maintenance responsibility for the **Van Buren DDA Place Making SWMS** commences when defined by the maintenance permit issued by the County. Long-term maintenance continues in perpetuity.

C. Manner of Insuring Maintenance Responsibility

The Van Buren Township has assumed responsibility for long-term maintenance of the **Van Buren DDA Place Making SWMS**. The resolution by which **the Van Buren Township** has agreed to perform the maintenance activities required by this plan is attached to the permit as Exhibit C. To ensure that the **Van Buren DDA Place Making SWMS** is maintained in perpetuity, the map of the physical limits of the storm water management system (Exhibit A), this plan (Exhibit B), and the resolution attached as Exhibit C will be recorded with the Wayne County Register of Deeds. Upon recording, a copy of the recorded documents will be provided to the Wayne County.

D. Long-Term Maintenance Plan and Schedule

Table 1 identifies the maintenance activities to be performed, organized by category (monitoring/inspections, preventative maintenance and remedial actions). While performing maintenance, chemicals should not be applied to the bioretentions, buffer strip, or watercourses. Table 1 also identifies site-specific work needed to ensure that the storm water management system functions properly as designed.

TABLE 1
STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE SCHEDULE

MAINTENANCE ACTIVITIES	SYSTEM COMPONENTS: Storm Collection System (Sewers, Swales, Catch Basins, Manholes)	Bioretentions & Buffer Strips	Mechanical Forebay	Underground Detention System	Outlet Control Structure & Outlet Pipe	Pavement Areas, Others	FREQUENCY
Monitoring/Inspection							
Inspect for Sediment Accumulation*	X		X	X	X		Annually
Inspect For Floatables, Dead Vegetation & Debris	X	X					Annually & After Major Events
Inspect For Erosion And Integrity of System	X	X	X	X	X	X	Annually & After Major Events
Inspect All Components During Wet weather & Compare	X	X	X	X	X	X	Annually
Ensure Maintenance Access Remain Open/Clear	X	X	X	X	X	X	Annually
Preventative Maintenance							
Mowing	X	X					As Needed / per local Ordinance
Remove Accumulated sediments	X		X	X	X		As needed**
Remove Floatables, Invasive & Dead Vegetation & Debris	X	X					As Needed
Replace Subsurface Components (Soils, Underdrain, Etc.)		X					Every 5 Years, or When Water Ponds More Than 6 Hours
Re-Apply / Replace Mulch Layer		X					Re-Apply Every 6 Months, Replace Every 2 Years
Sweep Paved areas, Remove Oil Spills Immediately						X	As Needed
Remedial Actions							
Repair/Stabilize Areas of Erosion, Reseed Bare Areas	X					X	As Needed
Replace Dead Plantings, Replace/ Re-Apply Mulch	X	X					As Needed
Structural Repairs	X		X	X	X	X	As Needed
Make Adjustments/Repairs to Ensure Proper Functioning	X	X	X	X	X	X	As Needed

NOTES: *Mechanical Forebay & Underground Detention System to be cleaned whenever sediments accumulate to a depth of 6-12 inches, or if sediment resuspension is observed.

PROPERTY INFORMATION:	PROPERTY OWNER:	ENGINEER:	DATE: 05/21/2018
Van Buren DDA Place Making 10151 Belleville Road Van Buren Township, Wayne County, Michigan	Van Buren Township DDA 46425 Tyler Road Belleville, MI 48111 Contact: Susan Ireland Phone: (734) 699 - 8900	Environmental Engineers, Inc. 18620 West 10 Mile Road Southfield, MI 48075 Phone: (248) 424-9510 Fax: (248) 424-2954	SHEET 1 OF 1

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DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE
STORM WATER
MAINTENANCE
EXHIBITS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐
DRAWN BY:	RM
CHECKED BY:	PL

REVISIONS:
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09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 05/21/18

SHEET NO.:
C-9

JOB NO.: 161675

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39674
LICENSED PROFESSIONAL ENGINEER

811
Know what's **below.**
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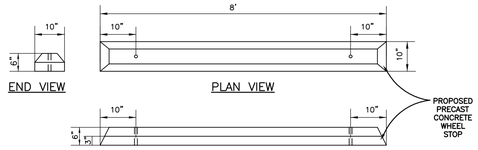
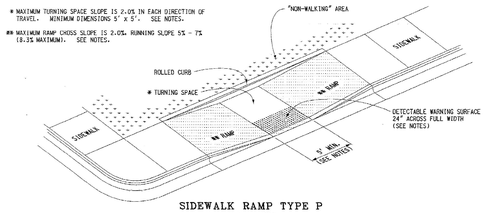


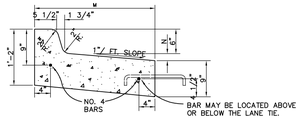
END VIEW PLAN VIEW

SIDE VIEW

TYPICAL
WHEEL STOP



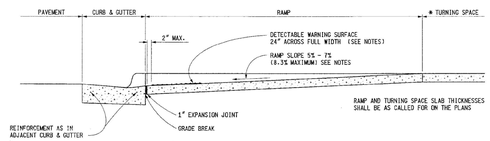
SIDEWALK RAMP TYPE P
(PARALLEL RAMP)
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



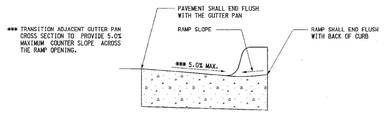
DETAIL	DIMENSIONS M	DIMENSIONS N	LANE TIES	CONCRETE CU. YD.	CONCRETE LIN. FT.
F1	1'-6"	7/8"	AS SHOWN	0.0484	
F2	1'-6"	7/8"	OMITTED	0.0484	
F3	2'-0"	1 3/8"	AS SHOWN	0.0610	
F4	2'-0"	1 3/8"	OMITTED	0.0610	
F5	2'-6"	1 7/8"	AS SHOWN	0.0737	
F6	2'-6"	1 7/8"	OMITTED	0.0737	

MODIFIED F

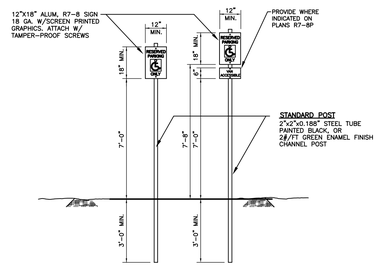
TYPICAL
CONCRETE CURB
AND GUTTER



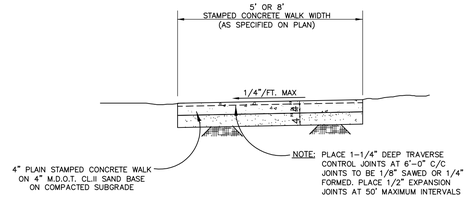
SECTION A-A



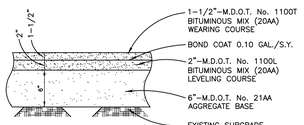
SECTION THROUGH CURB CUT
(TYPICAL ALL RAMP TYPES)



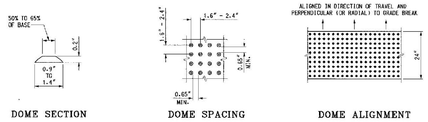
TYPICAL
BARRIER FREE
PARKING SIGNS



TYPICAL
STAMPED CONCRETE
WALK



TYPICAL
PARKING LOT
PAVEMENT



DOME SECTION DOME SPACING DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

SIDEWALK RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURVED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN ½". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

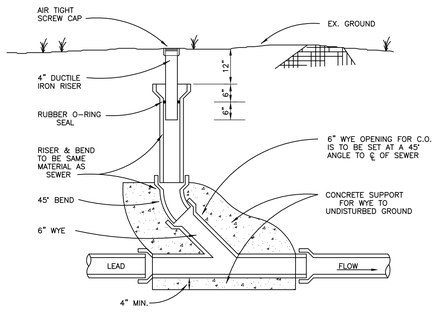
TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 5.0%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

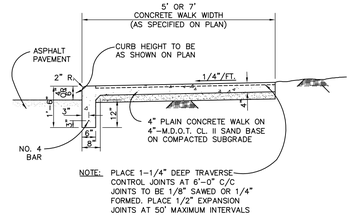
CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE, OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

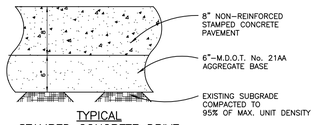
DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.



SEWER CLEANOUT
DETAIL



TYPICAL
CONCRETE WALK WITH
INTEGRAL CURB



TYPICAL
STAMPED CONCRETE DRIVE
PAVEMENT

WAKELY ASSOCIATES, INC.
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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE ENGINEERING DETAILS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
03/21/18 - CONSTRUCTION SET
05/21/18 - CONSTRUCTION SET
09/27/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

DATE: 08/25/17

SHEET NO.: C-10

JOB NO.: 161675

STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39674
LICENSED PROFESSIONAL ENGINEER

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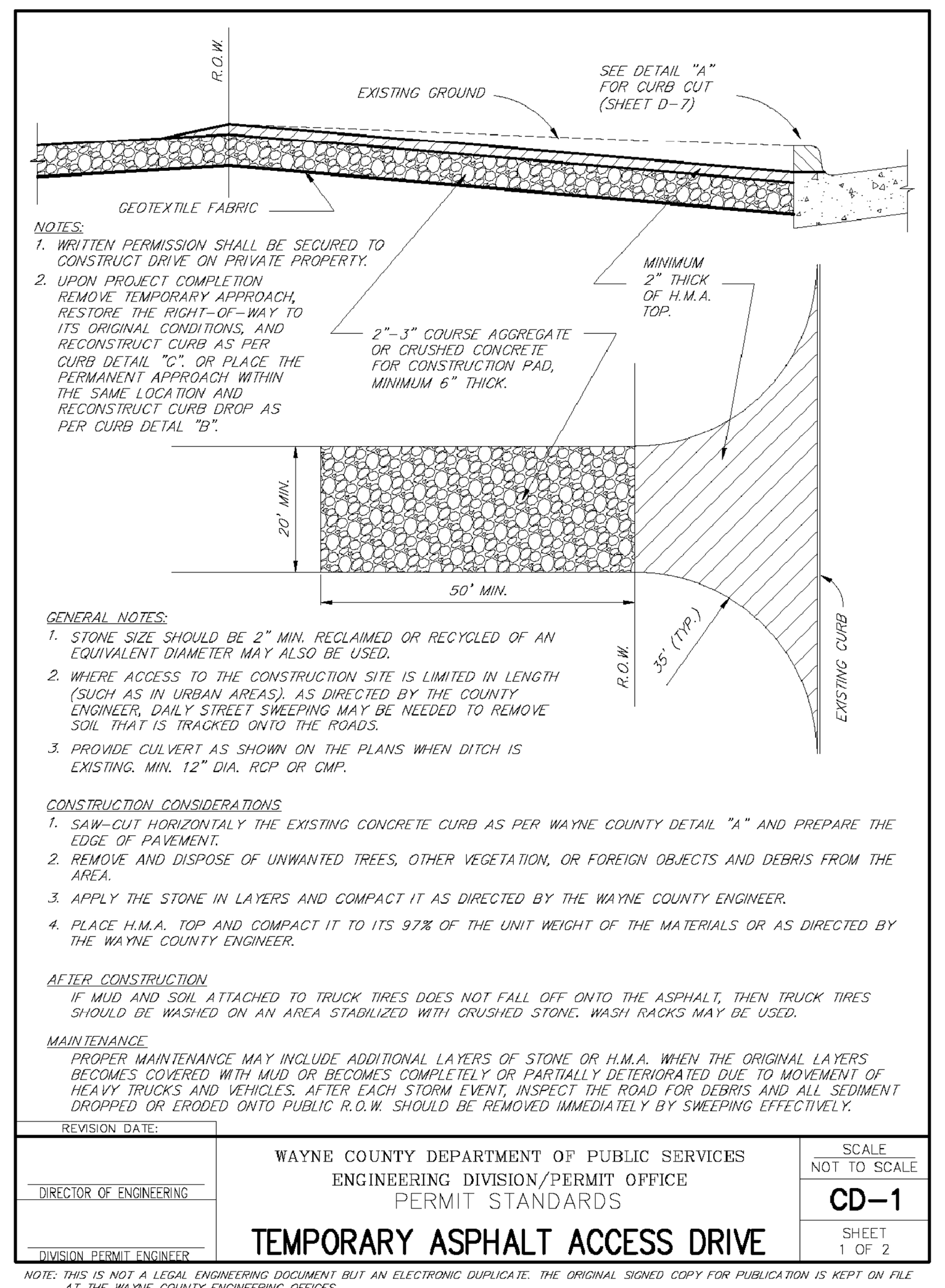
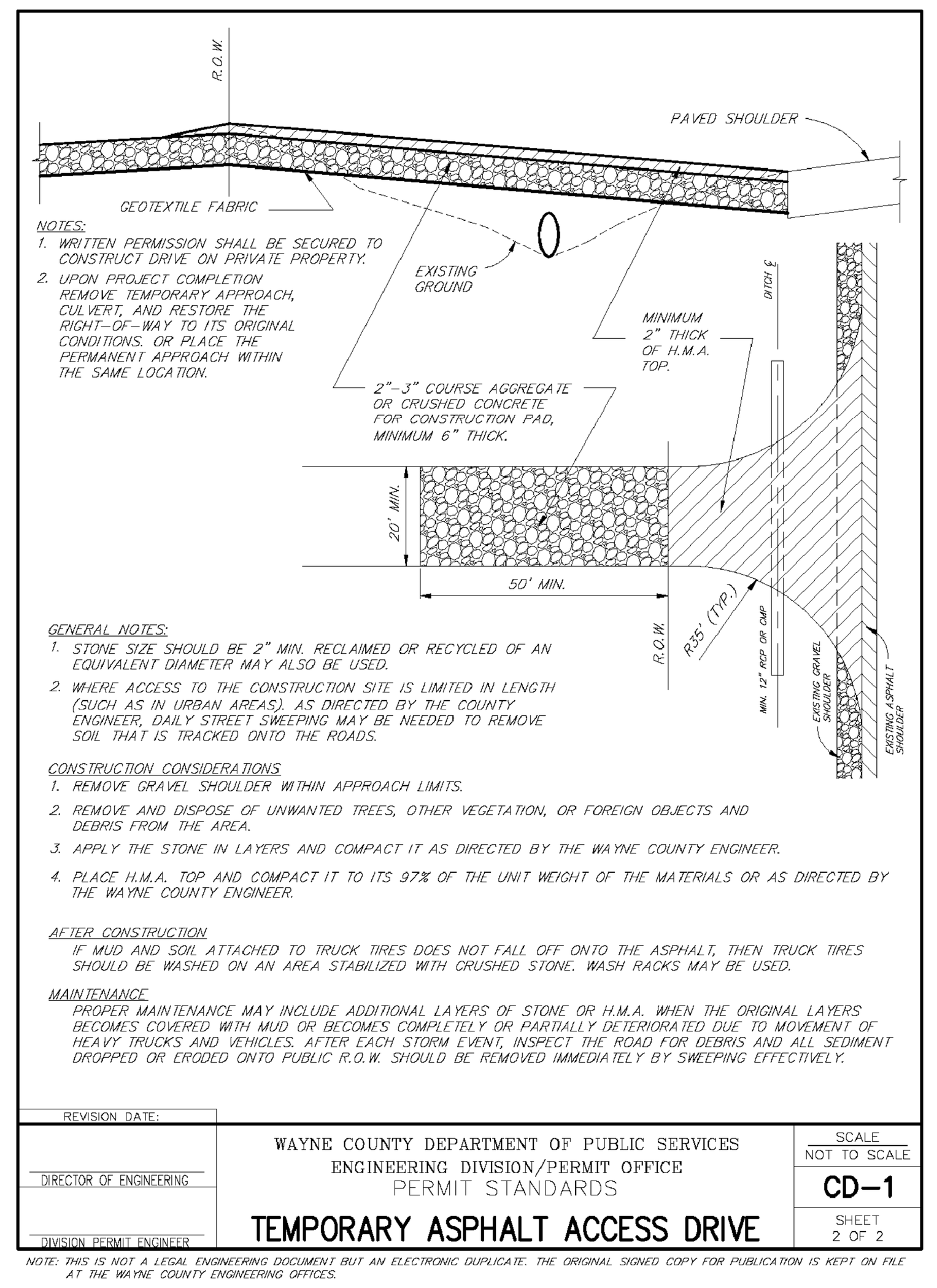
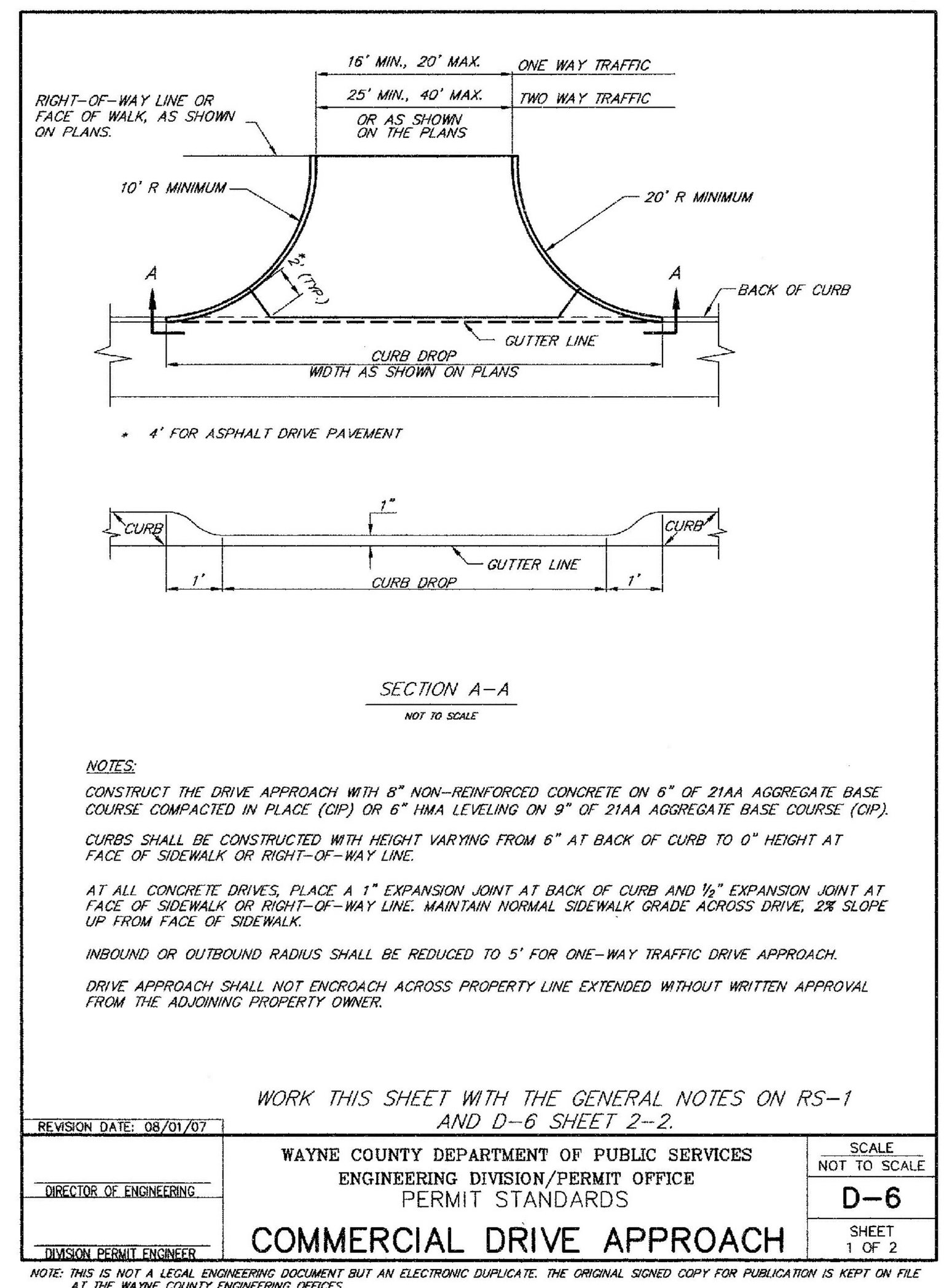
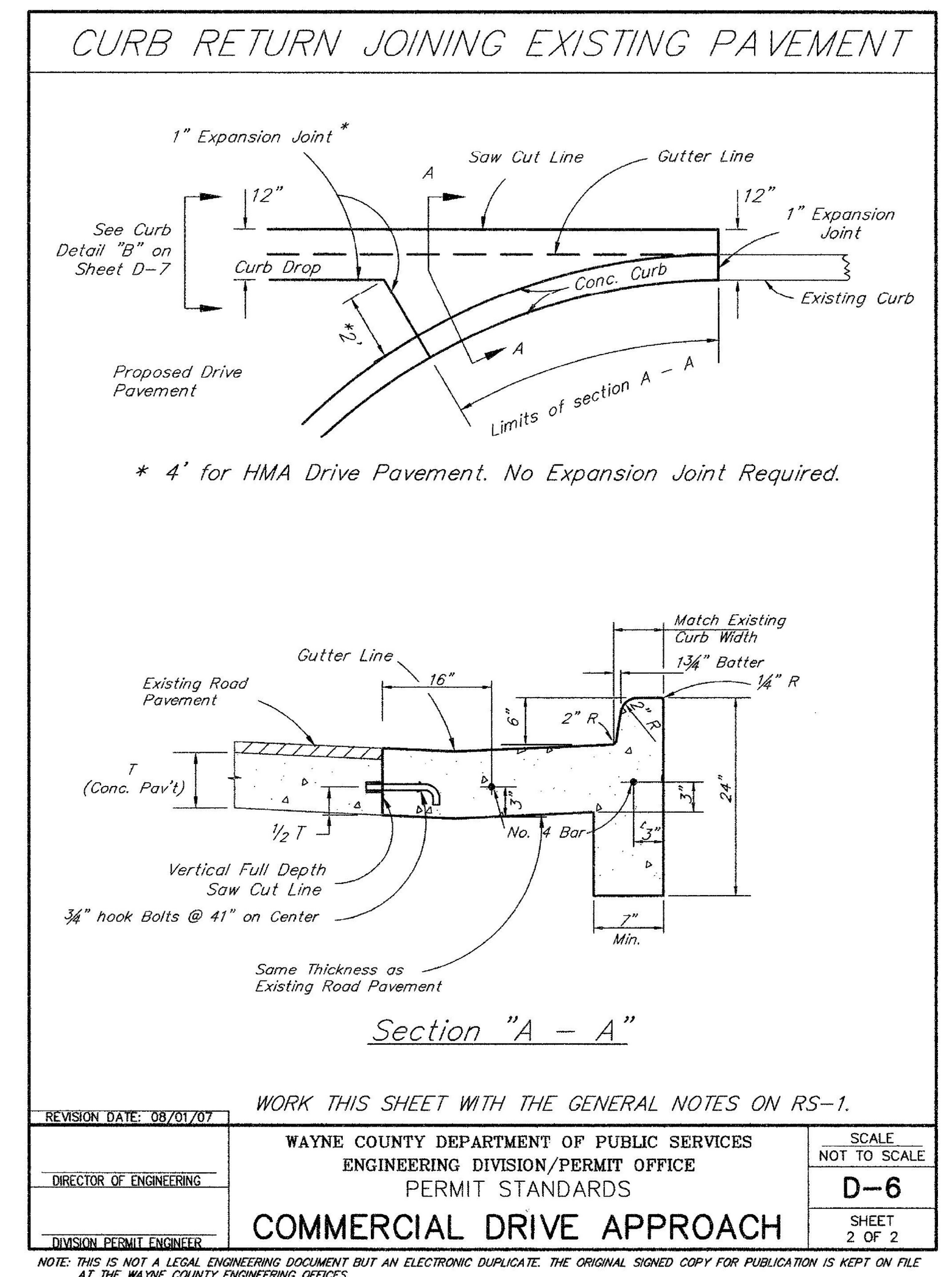
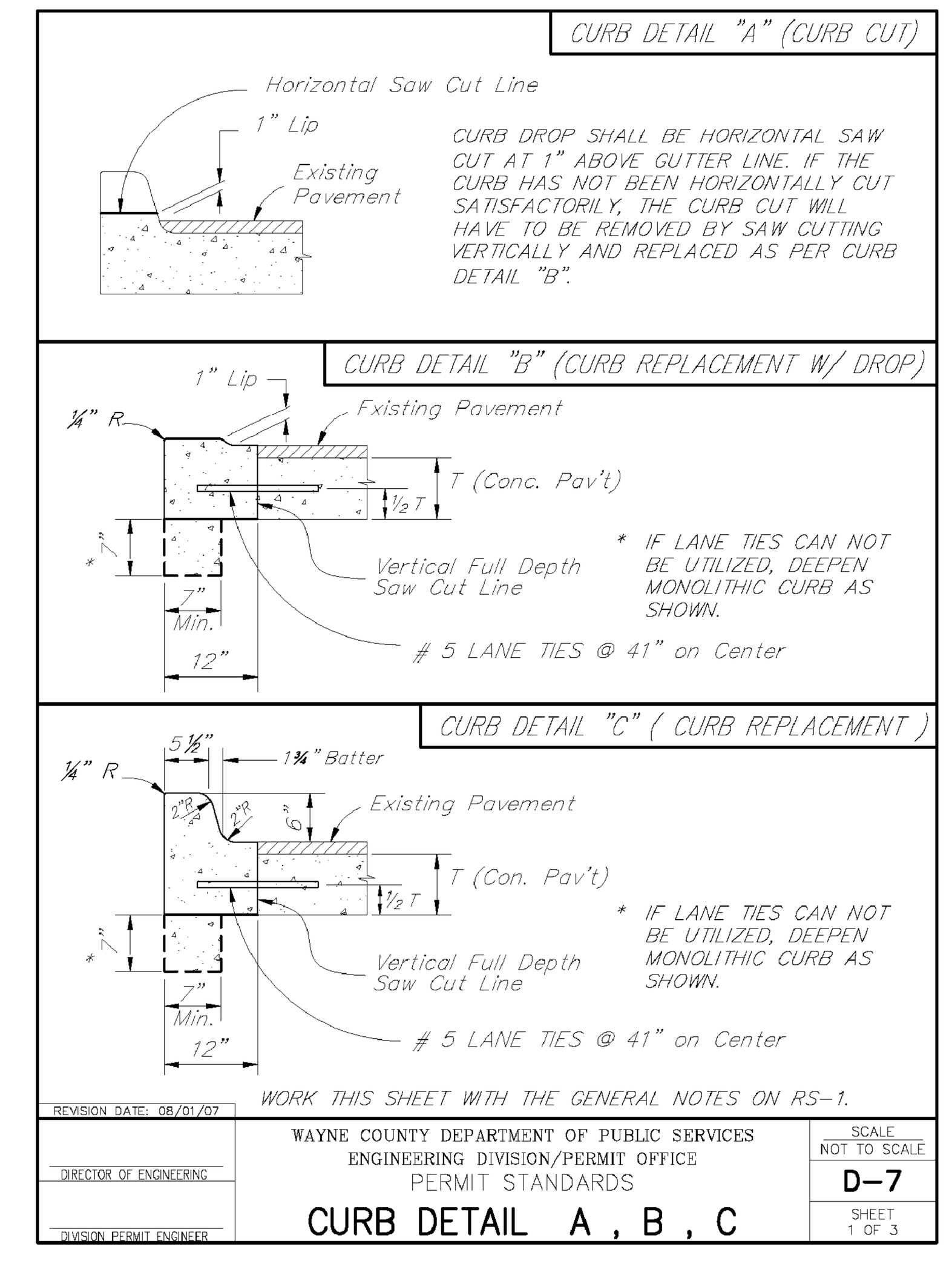
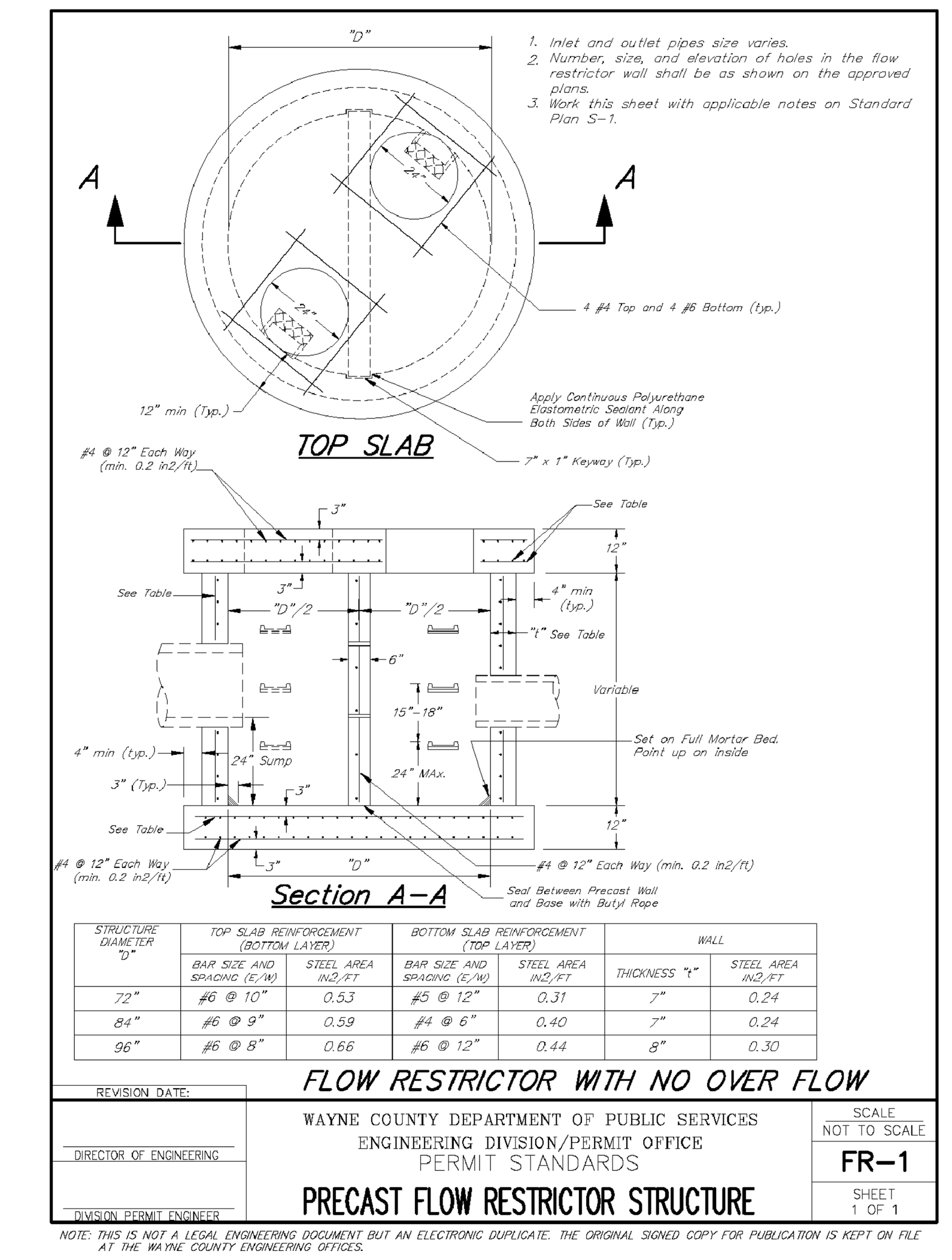












1. All materials and workmanship shall be in accordance with the Wayne County Specifications which are defined as the 2003 Michigan Department of Transportation (MDOT) Standard Specifications for Construction as modified by Wayne County Special Provisions.

2. The Contractor may construct manholes, catch basins and inlets, as detailed, with precast reinforced concrete units provided the following conditions are satisfied:

   a. All precast sections shall be made in accordance with ASTM C-478 except that:

      (1) The minimum wall thickness shall be 5 inches.

      (2) The thickness of base and top slabs shall be as detailed on the Standard Plans.

   b. The maximum diameter of sewer outlet in any precast unit shall be 18 inches, except for Inlets which shall have a maximum outlet diameter of 12 inches.

   c. No openings shall be made in precast units which would leave less than 24 inches of total undisturbed precast manhole wall or would remove more than 30% of the circumference along any horizontal plane. A minimum of 6 inches of undisturbed manhole is required between any two openings. Openings may be constructed by casting, removal of green concrete, or by drilling the openings in cured concrete.

   d. Openings for sewer pipe shall be cut or precast with a diameter 3 inches larger than the outside diameter of the pipe. The opening around the outside of the pipe shall be closed using brick masonry.

   e. Structures for sewers larger than 18 inches or those not meeting the opening requirements shall be built of block or brick to a minimum of 8 inches above the top of sewer, with precast units being used above this point. Where the precast units rest on the block or brick, the groove in the precast unit will be filled with mortar.

REVISION DATE: 08/01/07

DIRECTOR OF ENGINEERING	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE S-1
DIVISION PERMIT ENGINEER	GENERAL NOTES	SHEET 1 OF 2

   f. Circumstances encountered during construction may preclude the use of precast unit structures, as determined by the Engineer. If the contractor elects to use precast unit structures and field changes prohibit their use, no compensation will be made to the contractor for having these units manufactured, supplied, to the project, and not utilized.

   g. Special precast units for use on large diameter sewers must have the approval of the Engineer.

3. All vertical holes in concrete block structure wall shall be completely filled with mortar. All vertical wall joints shall be buttered.

4. The first pipe length entering or leaving any structure shall be temporarily supported by suitable means until the structure is completed and backfilled.

5. A poured Grade S1 concrete base without steel reinforcement, may be substituted for a precast base as approved by the Engineer. A porous backfill cushion will not be required under the poured base, unless the Contractor has excavated below the required elevation, at which time the Engineer will decide as to the merits of increasing the thickness of the concrete base or the use of a porous backfill cushion.

6. The conical section of brick or block manholes, catch basins or inlets, shall be shrouded with a geotextile blanket from the top down to 1 foot below the conical section. Precast structures shall be shrouded with the geotextile blanket to a point 1 foot below the stack. Enough geotextile material will be left on the top to roll over the brick stack and under the casting. Also, wrap inlet and outlet pipes at connection to the structures with a geotextile blanket, minimum 1 foot each direction. The geotextile blanket shall meet the requirements of Subsection 910.03.A in the 2003 MDOT Standard Specifications for Construction.

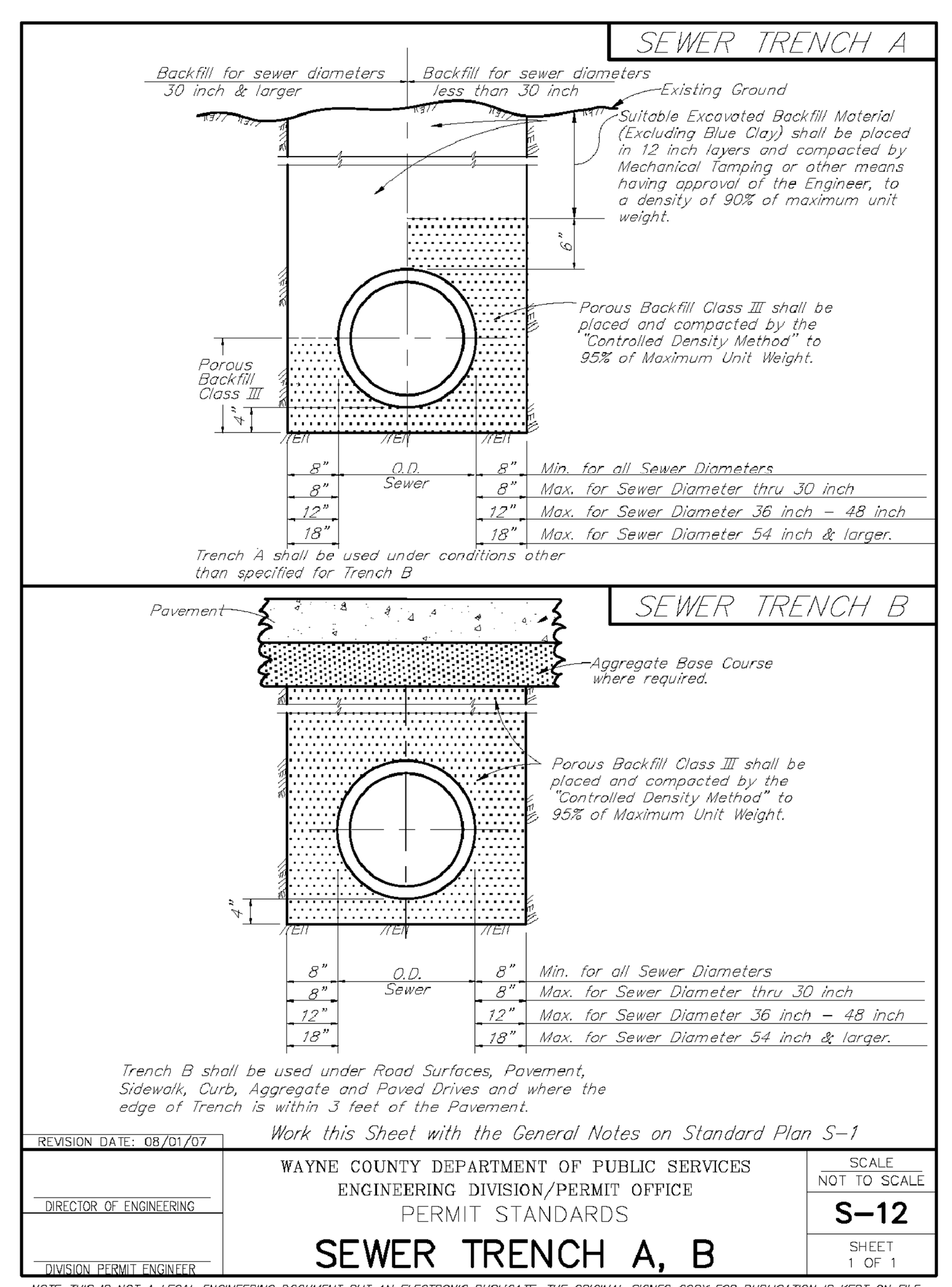
7. A 10 feet length of 6 inch Underdrain in Sewer Trench will be required at proposed drainage structure that do not have longer lengths of underdrain connected to them (see Standard Plan S-14). The cost of these 10 feet lengths of underdrain with end caps shall be included in the cost of the drainage structure.

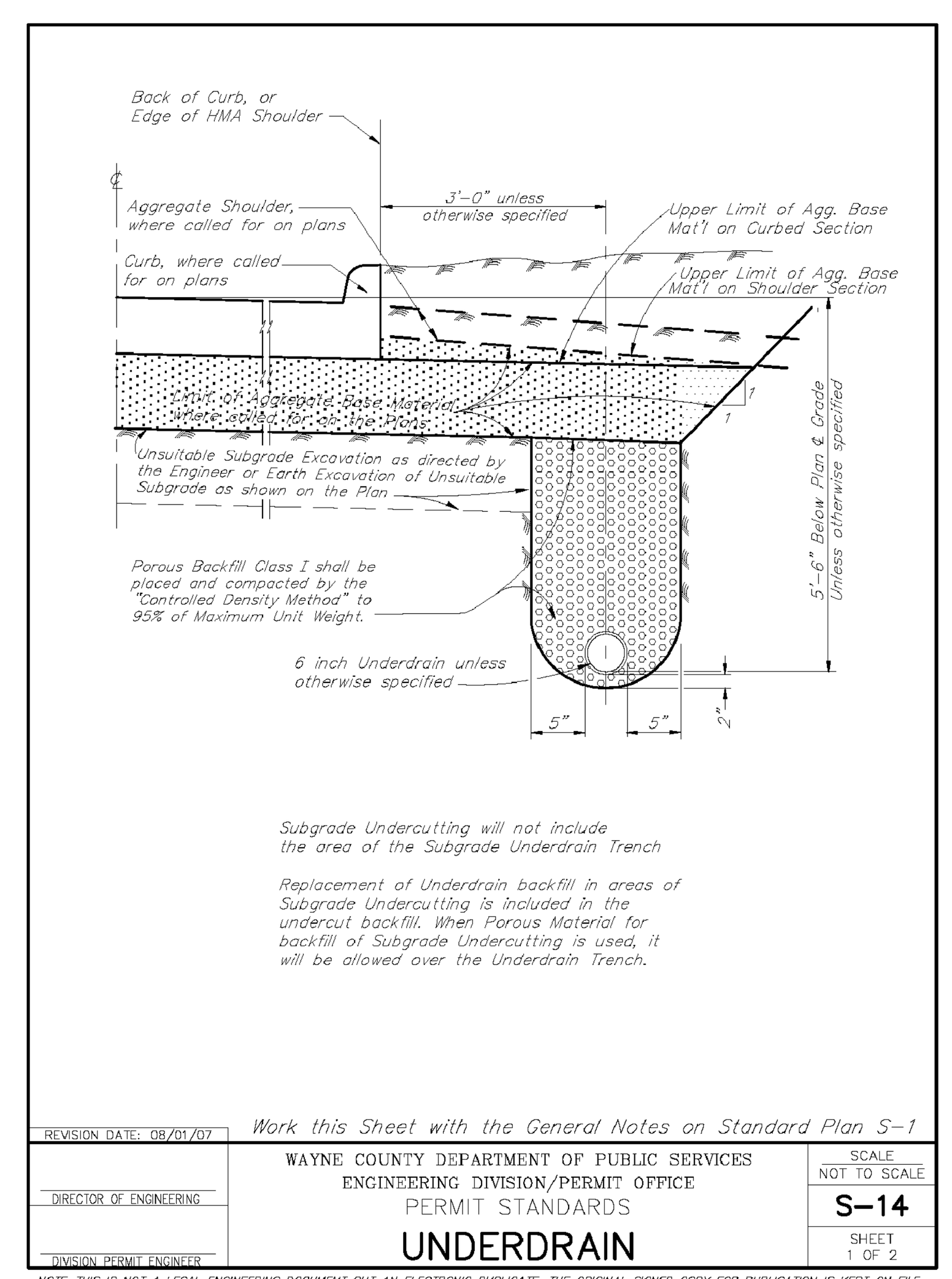
8. Steps are required for all structures over 10 feet in depth. Steps shall be of an approved design, made of cast iron, aluminum, or plastic coated steel. Rungs shall be a minimum of 10 inches clear length and designed to prevent the foot from slipping off the end. The minimum horizontal load shall be 405 lbf. The minimum vertical load shall be 810 lbf.

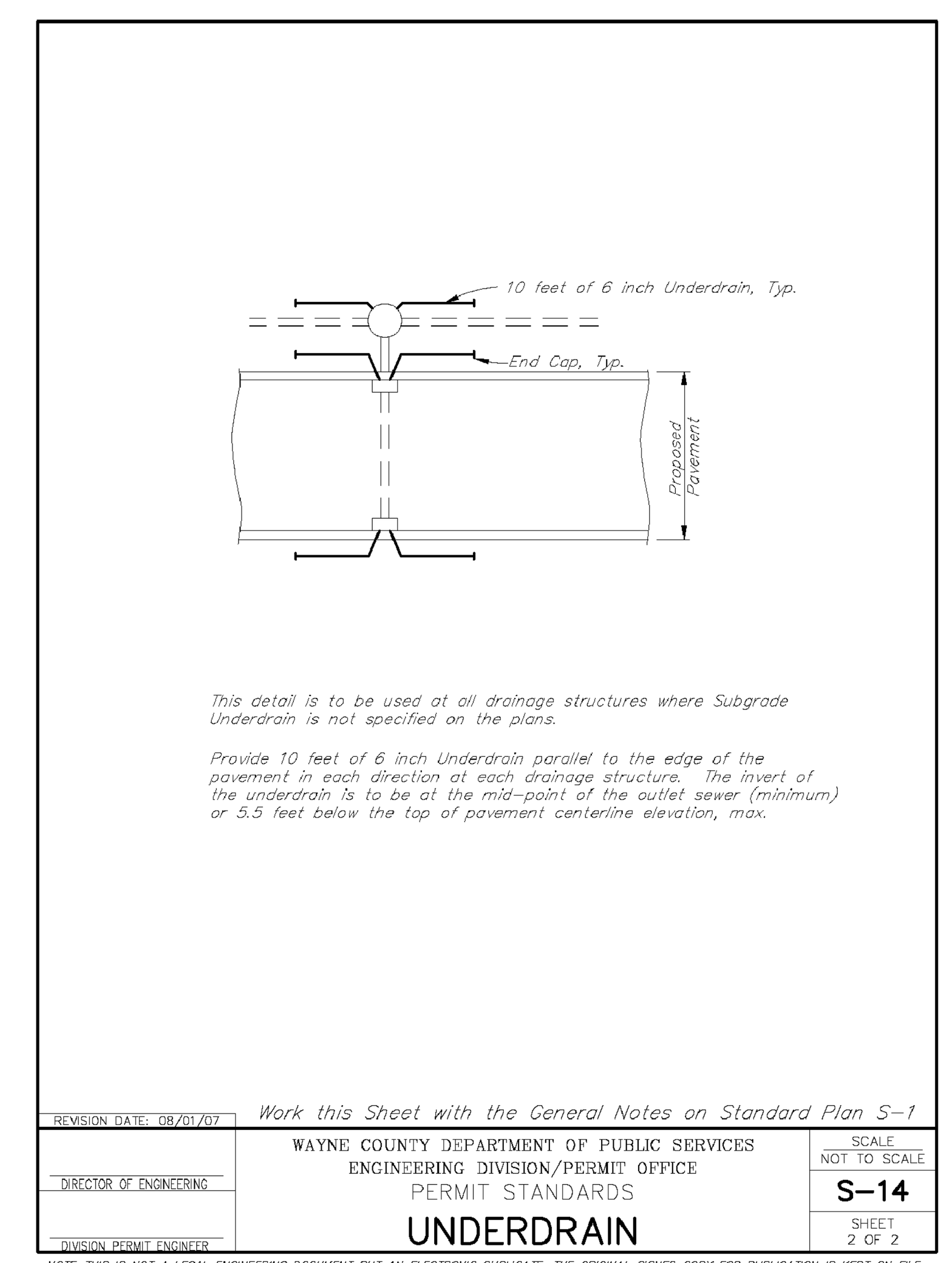
REVISION DATE: 08/01/07

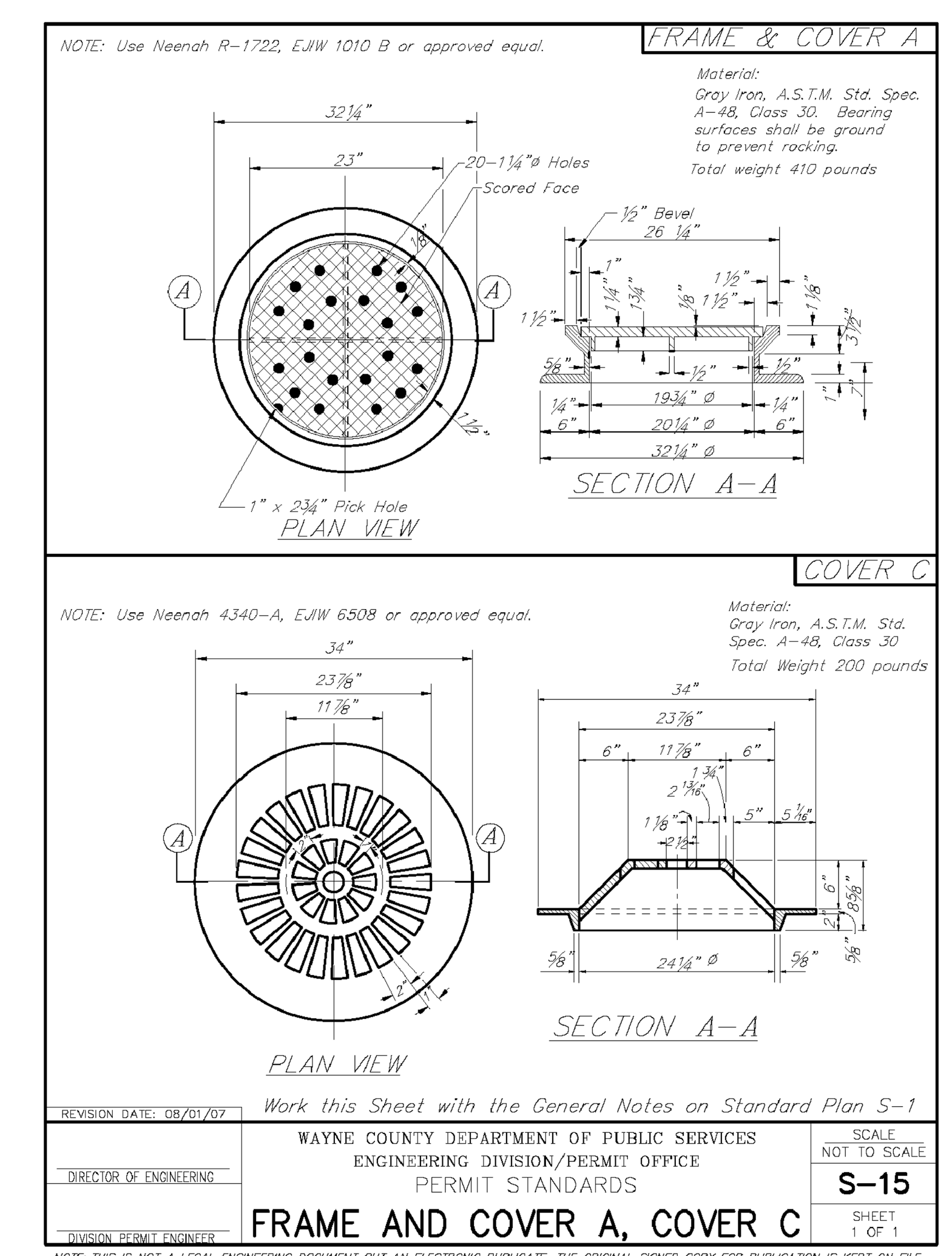
DIRECTOR OF ENGINEERING	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE S-1
DIVISION PERMIT ENGINEER	GENERAL NOTES	SHEET 2 OF 2

NOTE: THIS IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL SIGNED COPY FOR PUBLICATION IS KEPT ON FILE AT THE WAYNE COUNTY ENGINEERING OFFICES.









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WAYNE COUNTY DETAILS

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DESIGN DEVELOPMENT	☐
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STATE OF MICHIGAN
PAUL J. LEWSLEY
ENGINEER
No. 39674
LICENSED PROFESSIONAL ENGINEER

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DATE: 05/21/18

SHEET NO.: C-11

JOB NO.: 161675

1. All materials and workmanship shall be in accordance with Wayne County Specifications which are defined as the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction as modified by Wayne County Special Provisions.

2. Paving Standard Plan Details may be shown with wire fabric reinforcement. Use of reinforcement shall be required as called for on the plans.

3. A Transverse End of Pour Joint, Symbol (H), shall be constructed when there is an interruption in concrete paving for more than ½ hour. Transverse End of Pour Joint, Symbol (H), shall be constructed in accordance with current MDOT Standard Plan, R–39 series (Reinforced Concrete Pavement) and R–39P series (Plain Concrete Pavement). This note applies to both concrete base and finished concrete pavement.

4. When it is anticipated that construction traffic will be using the pavement, endings will be protected by means of a temporary concrete header as shown on RS–4.

5. The Expansion Joint Foam Rod shall be a solid round heat resistant Polyurethane foam capable of withstanding the temperature of the sealant. Density of the foam shall be 2–4 Lb/Cft.

6. Wire Fabric Reinforcement shall lay flat when delivered to the work area. The use of spreader bars will be required for lifting bundles of reinforcement.

7. Where the lane width of the pavement differs from wire fabric reinforcement standards, special sheets of the required width may be used or standard sheets may be cut to the required size or split sheets may be added to standard sheets to obtain the required size. Side laps shall not be less than the spacing of the longitudinal wires.

8. The ends of the Wire Fabric Reinforcement sheets shall be fastened in at least two places at each lap to prevent horizontal and vertical displacement.

9. When Concrete Pavement Repairs are longer than 20 feet, Transverse Plane of Weakness Joints (WT) shall be placed in–line with existing transverse joints, working cracks, or at 15 feet maximum and 6 feet minimum spacings.

10. Existing concrete pavements with HMA surface requiring saw–cutting for removal shall have the saw cuts extend completely thru the concrete pavement. Sawed over–cuts occurring in adjacent slab, gutter or shoulder, which will remain in place, shall be sealed.

REVISION DATE: 08/01/07

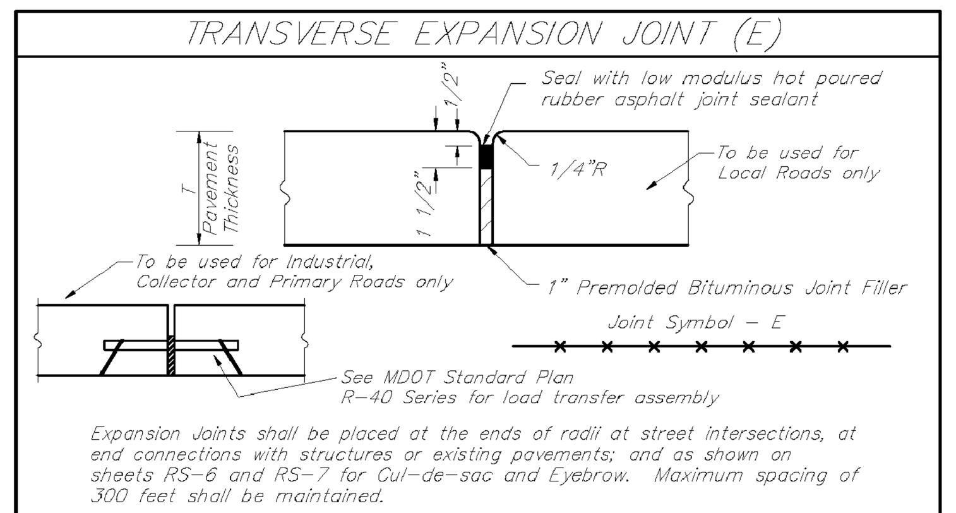
DIRECTOR OF ENGINEERING | DIVISION PERMIT ENGINEER

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION/PERMIT OFFICE
PERMIT STANDARDS

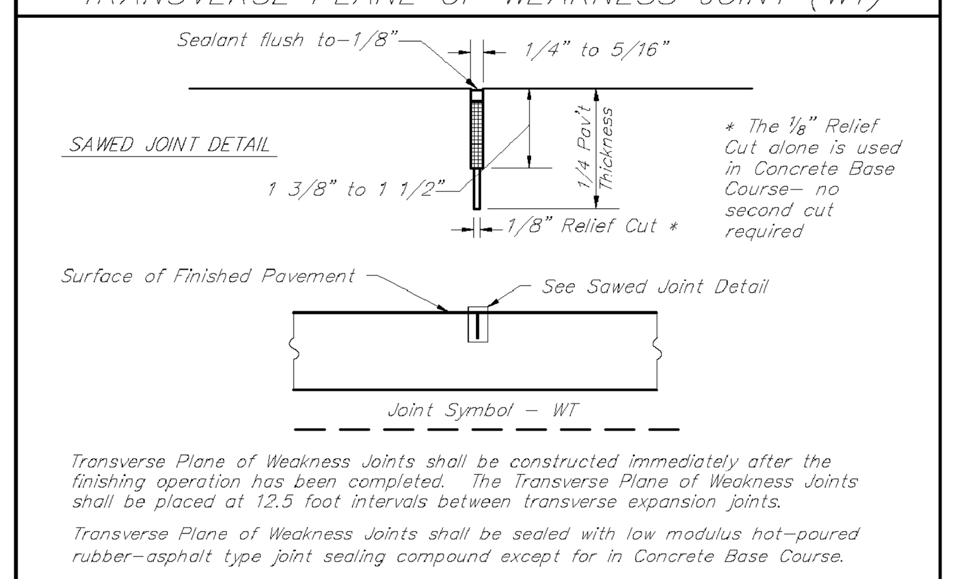
GENERAL NOTES

SCALE: NOT TO SCALE — RS–1 — SHEET 1 OF 1

TRANSVERSE EXPANSION JOINT (E)

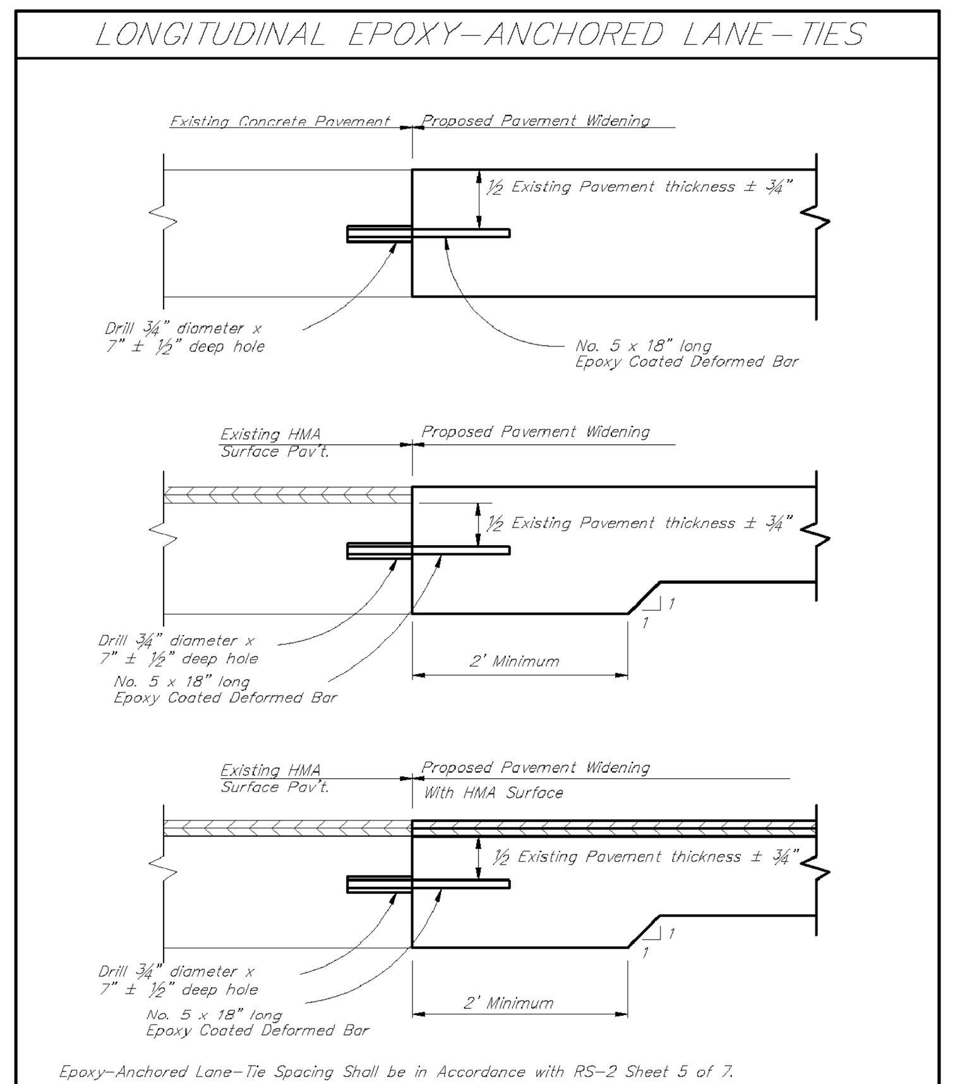


TRANSVERSE PLANE OF WEAKNESS JOINT (WT)



WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES — PERMIT STANDARDS — PAVEMENT JOINTS — RS–2 — SHEET 1 OF 7

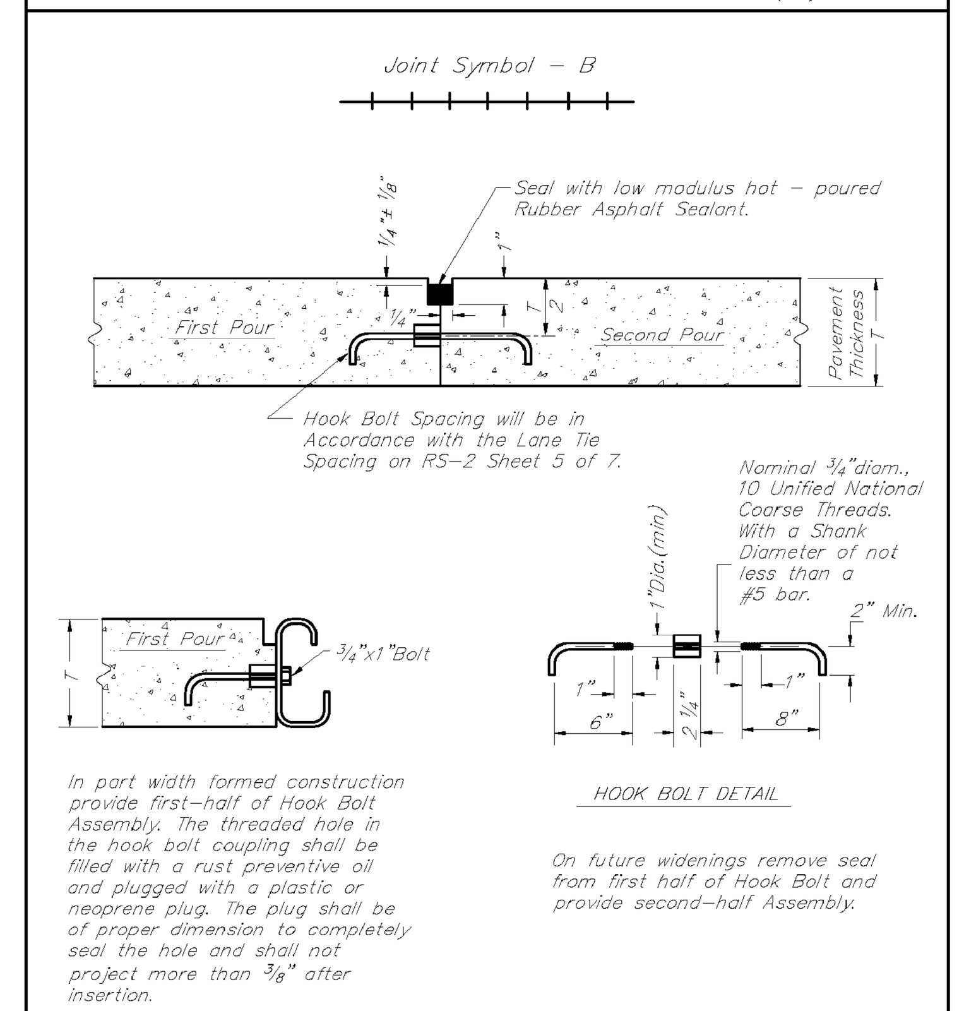
LONGITUDINAL EPOXY–ANCHORED LANE–TIES



Work This Sheet with the General Notes on RS–1

PAVEMENT JOINTS — RS–2 — SHEET 2 OF 7

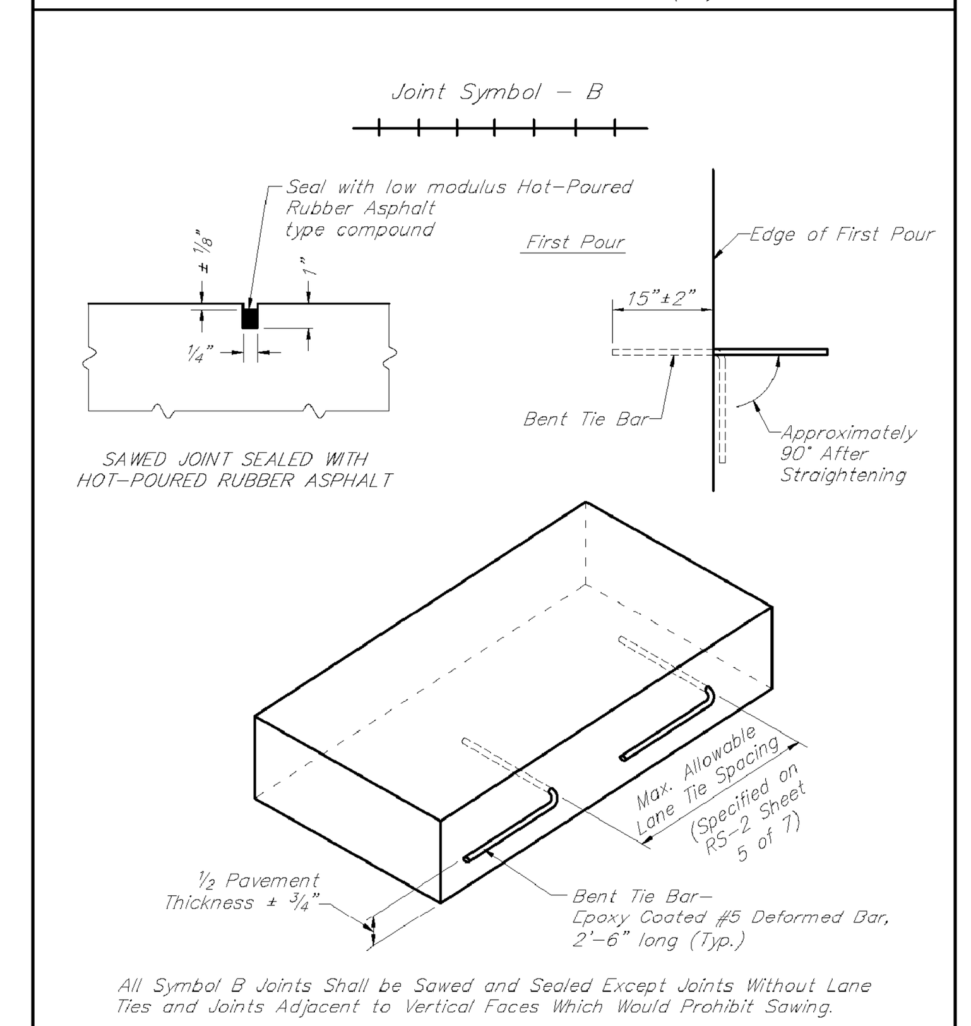
LONGITUDINAL FORMED BULKHEAD CONSTRUCTION JOINT WITH HOOK–BOLT ASSEMBLY (B)



Work This Sheet with the General Notes on RS–1

PAVEMENT JOINTS — RS–2 — SHEET 3 OF 7

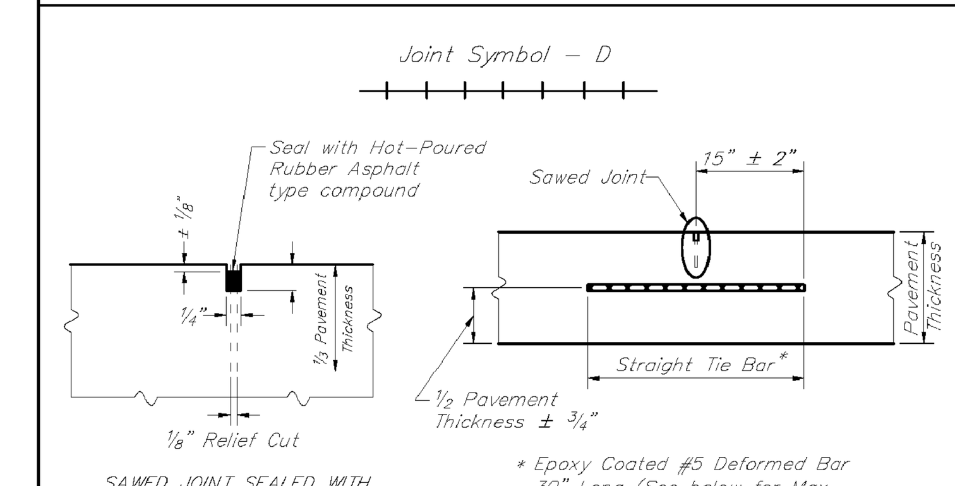
LONGITUDINAL FORMED BULKHEAD CONSTRUCTION JOINT WITH LANE TIES (B)



Work This Sheet with the General Notes on RS–1

PAVEMENT JOINTS — RS–2 — SHEET 4 OF 7

LONGITUDINAL LANE TIE JOINT (D)



SAWED JOINT SEALED WITH HOT–POURED RUBBER ASPHALT

* Epoxy Coated #5 Deformed Bar 30" Long (See below for Max. Allowable Lane Tie Spacing)

All Symbol D Tie Bars Shall be Placed at the Proper Spacing Longitudinally, and Transversely at 90° with the Joint.

MAXIMUM ALLOWABLE LANE TIE SPACING

MAX. ALLOWABLE LANE TIE SPACING SYMBOLS B AND D		TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE **
B Grade 40	D Grade 60	
2'–10"	3'–7"	12' or less
1'–11"	2'–7"	over 12' through 17'
1'–5"	1'–11"	over 17' through 24'
1'–2"	1'–9"	over 24' through 28'
1'–2"	1'–4"	over 28' through 36'
1'–1"	1'–1"	36' or greater ***

** Includes any Tied Combination of Lane Width, Valley Gutter, Curb & Gutter, or Shoulder.

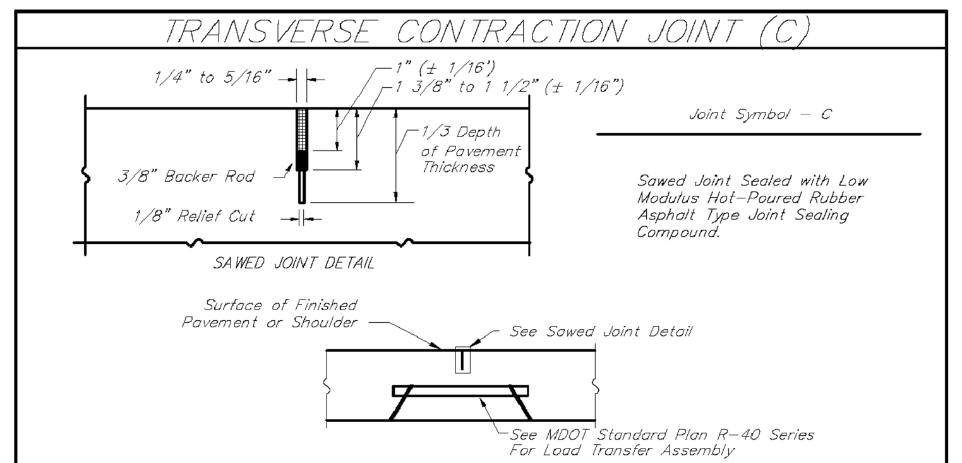
*** For Widths Greater than 48' use #6 Deformed Bars at 1'–2" Spacing.

Work This Sheet with the General Notes on RS–1

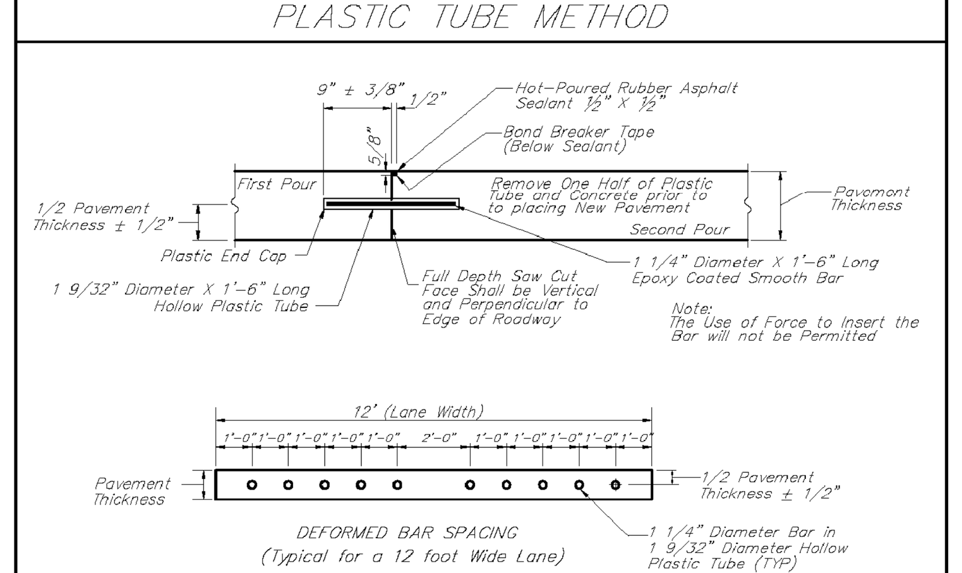
REVISION DATE: 08/01/07

PAVEMENT JOINTS — RS–2 — SHEET 5 OF 7

TRANSVERSE CONTRACTION JOINT (C)



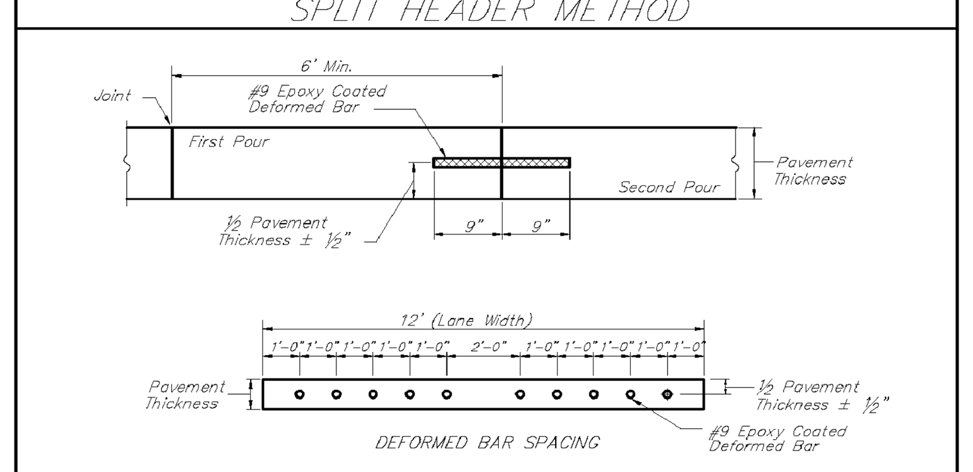
TRANSVERSE END OF POUR JOINT (H) PLASTIC TUBE METHOD



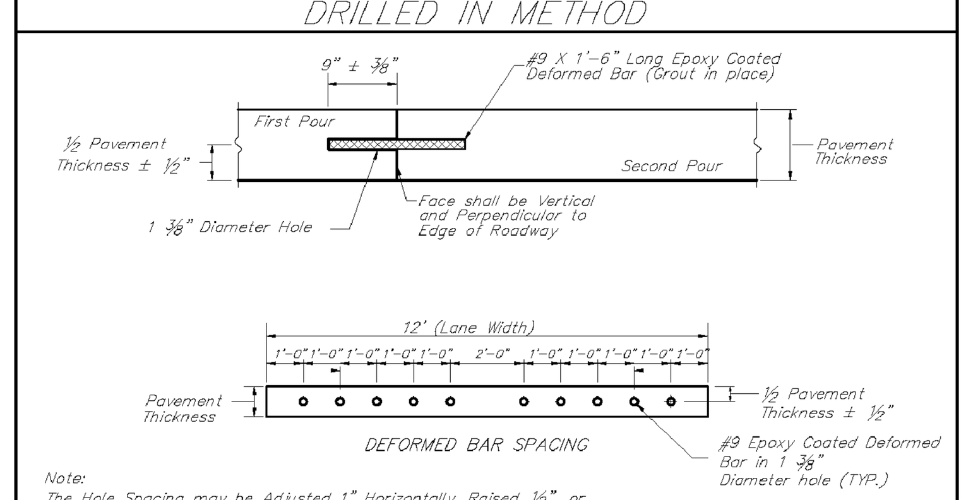
Work This Sheet with the General Notes on RS–1

PAVEMENT JOINTS — RS–2 — SHEET 6 OF 7

TRANSVERSE END OF POUR JOINT (H) SPLIT HEADER METHOD



TRANSVERSE END OF POUR JOINT (H) DRILLED IN METHOD



Work This Sheet with the General Notes on RS–1

PAVEMENT JOINTS — RS–2 — SHEET 7 OF 7

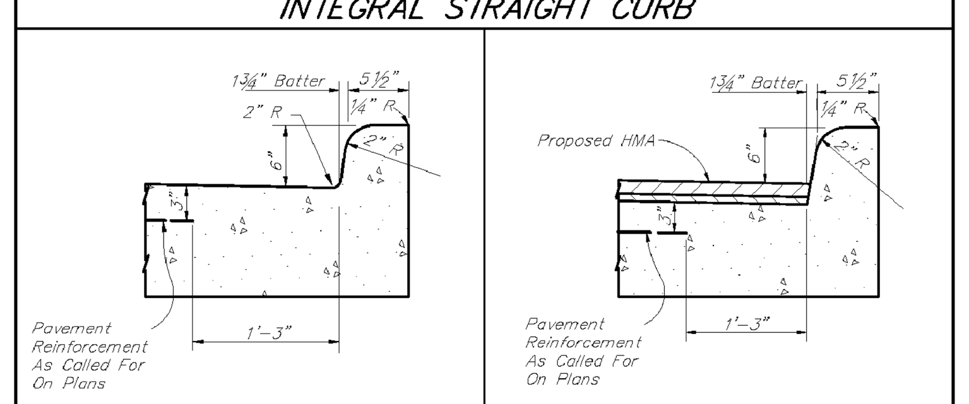
All transverse joints in the concrete pavement shall extend entirely through the integral curb and be of the same kind and thickness as provided for the pavement.

The joint material shall be pre–cut so as to conform to the geometric shape and cross sectional area of the curb, and shall be placed in contact with the filler material in the pavement.

Integral curbs, which are placed as part of a concrete base course pavement shall have transverse plane of weakness joints, formed by placing a pre–molded bituminous filler ¼ inch thick, entirely through the curb, in exact alignment with all joints in the base course pavement. The joint material shall be pre–cut so as to conform to the geometric shape and cross sectional area of the curb.

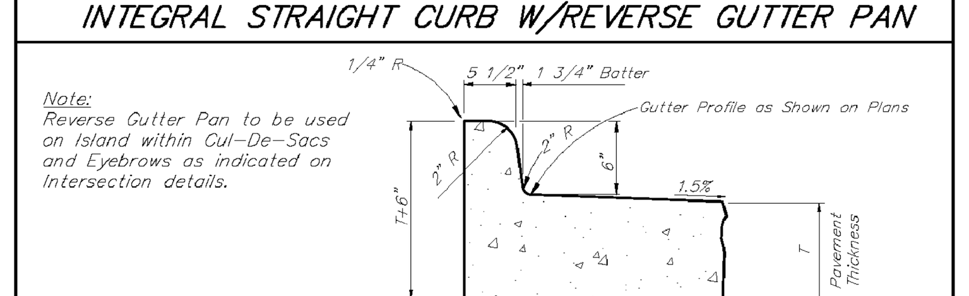
The edges of all transverse joints in the integral curb shall be rounded with an approved finishing tool having a radius of ¼ inch.

INTEGRAL STRAIGHT CURB



CONCRETE PAVEMENT — TYPE 3 | CONCRETE BASE COURSE — TYPE 4

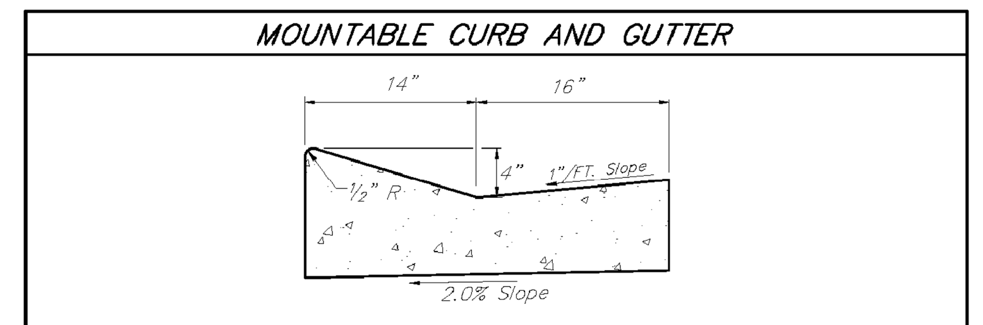
INTEGRAL STRAIGHT CURB W/REVERSE GUTTER PAN



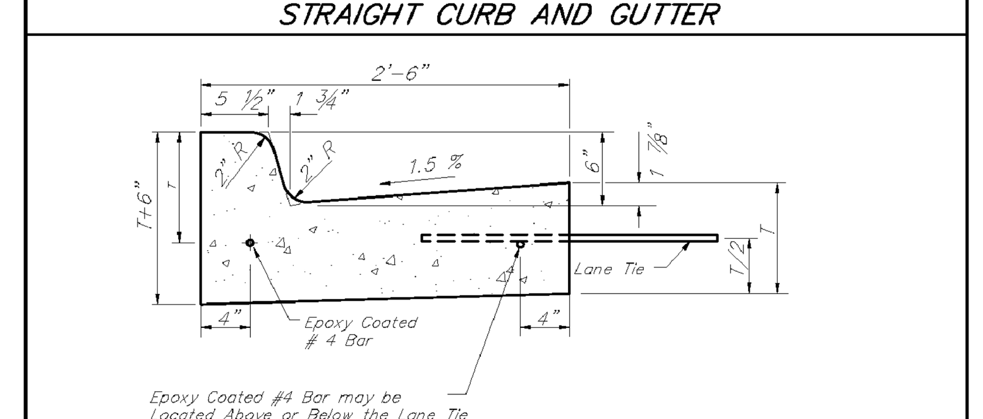
Work This Sheet with the General Notes on RS–1

CURB AND CURB & GUTTER DETAILS — RS–3 — SHEET 1 OF 3

MOUNTABLE CURB AND GUTTER



STRAIGHT CURB AND GUTTER



NOTES:
PLANE OF WEAKNESS JOINTS SHALL BE PLACED BETWEEN EXPANSION JOINTS AT APPROXIMATELY 10' INTERVALS.

EXPANSION JOINTS SHALL BE PLACED 10' EACH SIDE OF ALL CATCH BASINS AND AT THE ENDS OF RADII AT ALL STREET RETURNS AND SEALED WITH HOT–POURED RUBBER ASPHALT COMPOUND.

MATCH CONCRETE PAVEMENT JOINTS NOT TO EXCEED 25' SPACINGS.

"T" IS THE DEPTH OF PROPOSED CURB AND GUTTER SECTION THAT SHALL MATCH THE THICKNESS OF PROPOSED PAVEMENT, UNLESS OTHERWISE DIRECTED BY THE WAYNE COUNTY ENGINEER OR AS SHOWN ON APPROVED PLANS.

OMIT LANE TIES WHEN PLACING CURB NEXT TO HMA PAVEMENT.

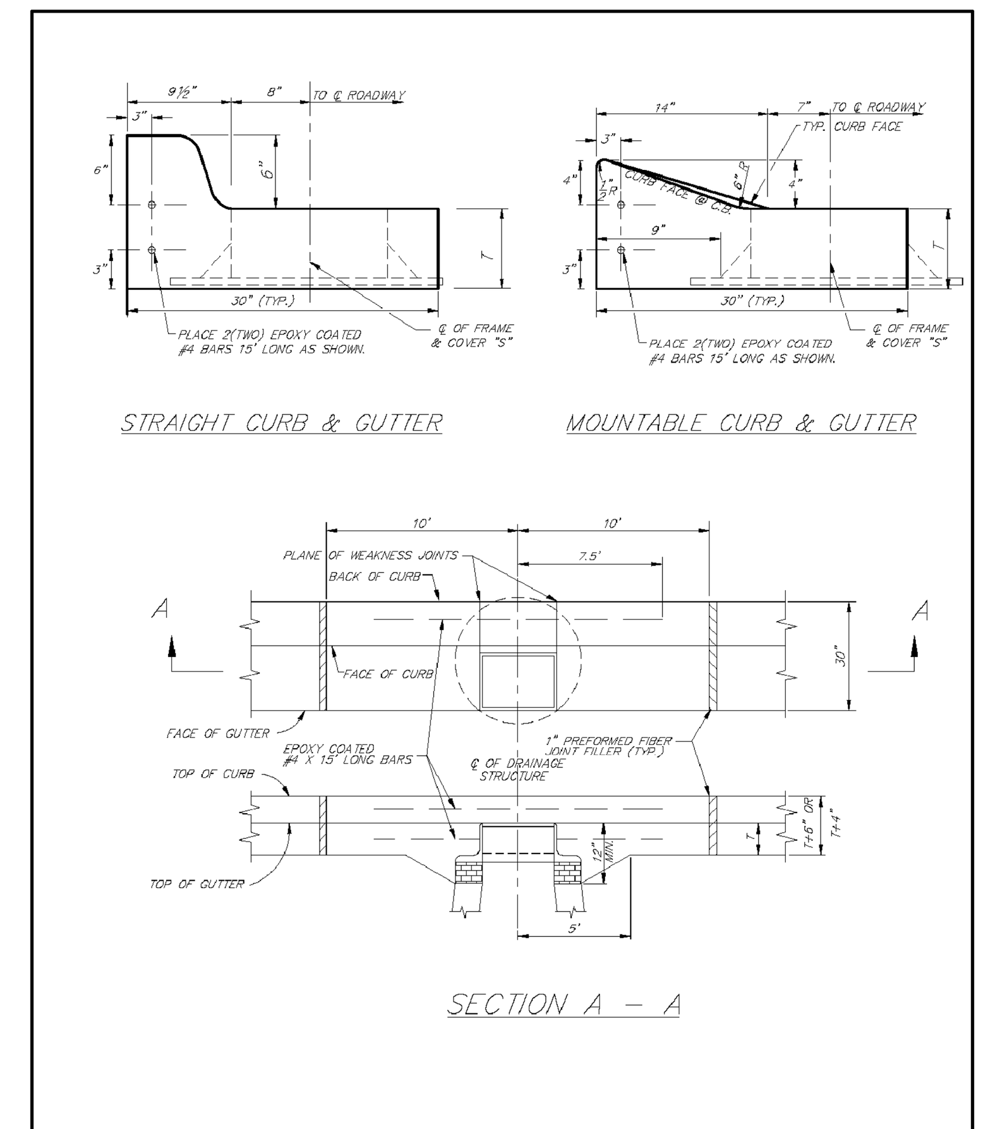
PLACE 1" FIBER JOINT FILTER AT 400' MAXIMUM INTERVALS.

WORK THIS SHEET WITH THE GENERAL NOTES ON RS–1

REVISION DATE: 08/01/07

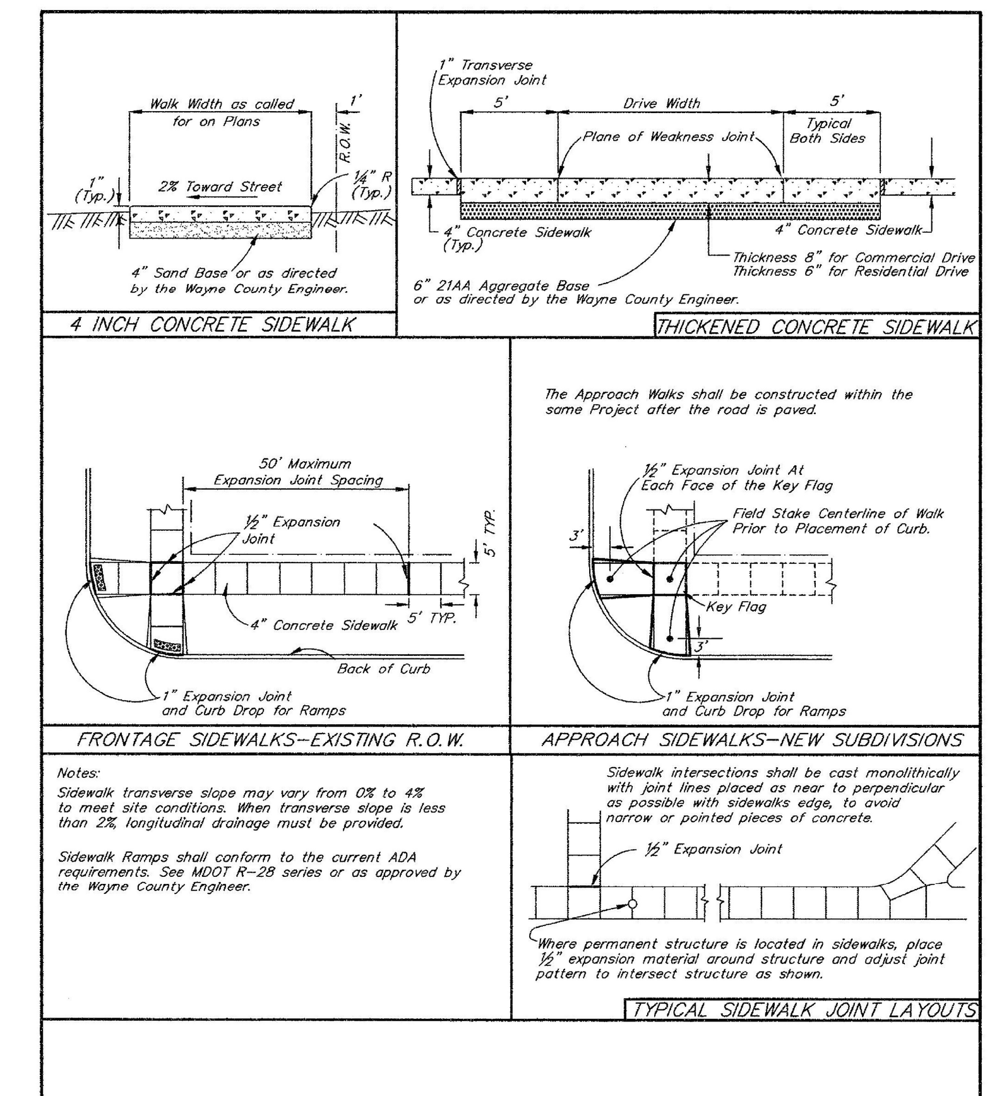
WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION/PERMIT OFFICE
PERMIT STANDARDS

CURB AND CURB & GUTTER DETAILS — SCALE: NO SCALE — RS–3 — SHEET 2 OF 3



WORK THIS SHEET WITH "S" SERIES STANDARDS

CURB AND CURB & GUTTER DETAILS — RS–3 — SHEET 3 OF 3



Work this Sheet with the General Notes on RS–1

CONCRETE SIDEWALK — RS–5 — SHEET 1 OF 1

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ENVIRONMENTAL ENGINEERS, INC.
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SOUTHFIELD, MICHIGAN 48075
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EE PROJECT NO. 1648

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

WAYNE COUNTY DETAILS

- PRELIMINARY ☐
- DESIGN DEVELOPMENT ☐
- CONSTRUCTION ■
- FINAL RECORD ☐

DRAWN BY: RM
CHECKED BY: PL

REVISIONS:
05/21/18 - CONSTRUCTION SET
08/21/18 - PER WCDPS
09/25/18 - ISSUED FOR CONSTRUCTION SET

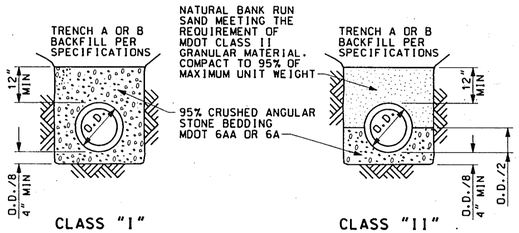
DATE: 05/21/18

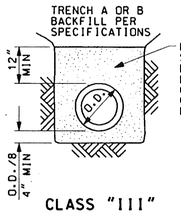
SHEET NO.: C-12

JOB NO.: 161675

STATE OF MICHIGAN — PAUL J. LEWSLEY — ENGINEER — No. 39674 — LICENSED PROFESSIONAL ENGINEER

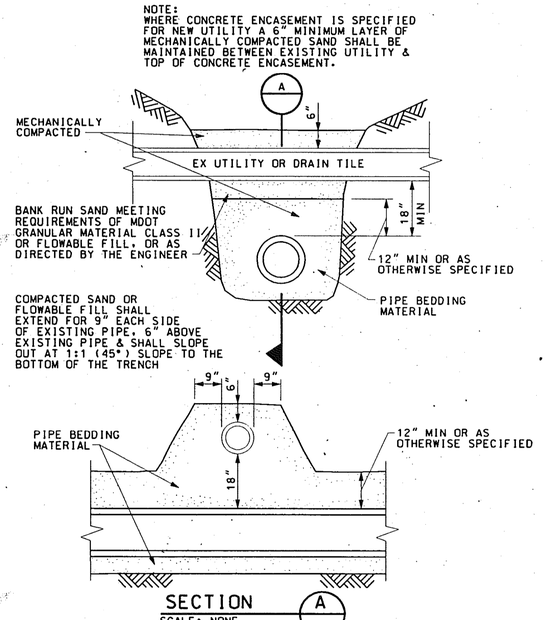
Know what's below. Call before you dig.



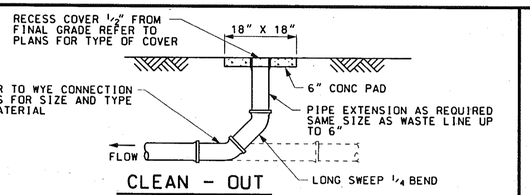


MAX WIDTH OF TRENCH AT 12" ABOVE TOP OF PIPE
6" THRU 12" PIPE - 30" WIDE
15" THRU 36" PIPE - O.D. +16"
42" THRU 60" PIPE - O.D. +20"
OVER 60" PIPE - OUTSIDE DIAMETER OF PIPE +24"
MIN WIDTH OF TRENCH 12" ABOVE THE TOP OF PIPE SHALL BE 6" ON EACH SIDE OF PIPE

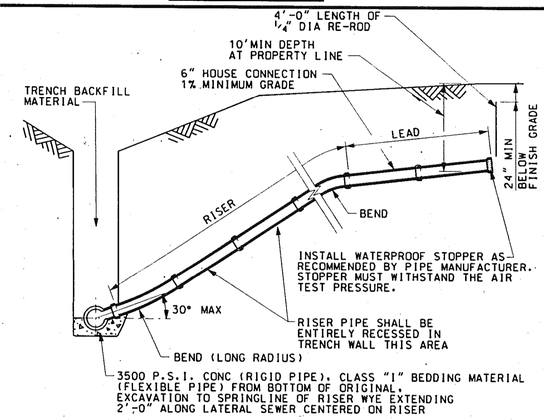
FLEXIBLE PIPE BEDDING DETAILS



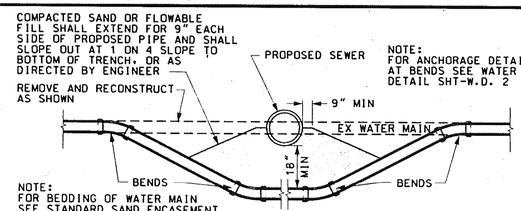
STANDARD PIPE SUPPORT



CLEAN - OUT



RISER/LEAD DETAIL



RELOCATION OF WATER MAIN

GENERAL NOTES

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL ATTEND A PRECONSTRUCTION MEETING, AT A TIME AND PLACE AS ARRANGED BY THE COMMUNITY, IN WHICH VARIOUS UTILITY COMPANIES AND GOVERNMENTAL AGENCY REPRESENTATIVES WILL BE PRESENT.

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION A COPY OF ALL PERMITS NECESSARY TO CONSTRUCT A CONNECTION TO, OR AN EXTENSION OF, THE WATER SUPPLY, SANITARY SEWER, OR STORM SEWER SYSTEMS.

3. THE CONTRACTOR SHALL MAINTAIN HIS CONSTRUCTION OPERATIONS WITHIN THE PRESENTLY EXISTING ROAD RIGHTS-OF-WAY AND EASEMENTS AS NOTED ON THE PLANS THROUGHOUT THE PROJECT. IN THE EVENT THAT THE CONTRACTOR DEEMS IT NECESSARY OR ADVISABLE TO OPERATE BEYOND THE LIMITS OF THE EXISTING RIGHTS-OF-WAY OR EASEMENTS, HE SHALL BE RESPONSIBLE FOR MAKING SPECIAL WRITTEN AGREEMENTS WITH THE PROPERTY OWNERS AND SHALL FURNISH SUCH COPIES OF AGREEMENTS TO THE COMMUNITY AND ENGINEER.

4. THE CONTRACTOR SHALL NOTIFY "MISS DIG" (800-482-7171) 3 DAYS (NOT INCLUDING HOLDAYS OR WEEKENDS) BEFORE STARTING CONSTRUCTION. HE SHALL MAKE ANY NECESSARY ARRANGEMENTS WITH UTILITY COMPANIES FOR RELOCATION OF EXISTING UTILITIES. THESE ARRANGEMENTS SHALL BE MADE IN SUFFICIENT TIME TO ALLOW THE RELOCATION WORK TO BE COMPLETED WITHOUT INTERFERING WITH OR DELAYING THE SEWER CONSTRUCTION.

5. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND THE ENGINEER 48 HOURS PRIOR TO UNCOVERING ANY EXISTING UTILITIES.

6. ON ALL WORK WITHIN THE WAYNE COUNTY RIGHT-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER, AND THE COMMUNITY 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.

7. THE CONTRACTOR SHALL MAINTAIN ALL TRAFFIC AT ALL TIMES AS PER THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

8. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE EMERGENCY ACCESS TO PROPERTY IN THE VICINITY OF THE CONSTRUCTION FOR POLICE AND FIRE EQUIPMENT, AMBULANCES OR OTHER EMERGENCY VEHICLES TO PROTECT LIFE, HEALTH AND PROPERTY.

   THE CONTRACTOR SHALL MAINTAIN PUBLIC ROADS AFFECTED BY THE CONSTRUCTION OPERATIONS IN A PASSABLE CONDITION UNTIL SUCH TIME AS FINAL RESTORATION OF THESE IMPROVEMENTS CAN BE MADE. IF THE PUBLIC SAFETY IS IN DANGER OR THE NECESSITY EXISTS FOR MAINTAINING TRAFFIC, BACKFILLING MUST BE COMPLETED IMMEDIATELY. IN THE EVENT THAT THE NECESSARY BACKFILL MATERIAL AND EQUIPMENT ARE NOT AVAILABLE WHEN DIRECTION IS GIVEN FOR IMMEDIATE BACKFILL, THE TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL TO PROVIDE FOR THE NECESSARY MAINTENANCE OF TRAFFIC AND SAFETY; HOWEVER, THE NATIVE MATERIAL SHALL BE REMOVED WITHIN 48 HOURS AND THE TRENCH PROPERLY BACKFILLED.

GENERAL NOTES CONTINUED

9. NO STREET, ROAD OR SECTION THEREOF SHALL BE CLOSED TO THROUGH TRAFFIC UNLESS AUTHORIZED BY THE AGENCY WITH JURISDICTION OVER THE ROADS. PRIOR TO CLOSING A STREET, ROAD, OR SECTION THEREOF, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A COPY OF A DETOUR PLAN APPROVED BY THE AGENCY HAVING JURISDICTION OVER THE ROADS.

   IN THE EVENT ROADS ARE TO BE CLOSED, THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE DEPARTMENT, POLICE DEPARTMENT, LOCAL ROAD AUTHORITY, AMBULANCE AND EMERGENCY SERVICES, DEPARTMENT OF PUBLIC WORKS, PUBLIC TRANSIT AUTHORITY, PUBLIC SCHOOL SYSTEM, LOCAL TRASH PICKUP AUTHORITY, AND PUBLIC AND PRIVATE UTILITIES DAILY AS TO WHAT STREETS WILL BE PARTLY BLOCKED OR CLOSED, THE LENGTH OF TIME THE STREETS WILL BE BLOCKED OR CLOSED AND WHEN THE STREETS WILL BE REOPENED TO TRAFFIC.

10. PAVED STREETS AND DRIVEWAYS SHALL BE MAINTAINED IN A REASONABLE STATE OF CLEANLINESS AND THE CONTRACTOR SHALL REMOVE ACCUMULATIONS OF DEBRIS CAUSED BY HIS OPERATIONS. THE CONTRACTOR SHALL HAVE, AS A MINIMUM, AN OPERATING SWEEPER BROOM ON THE SITE AT ALL TIMES. THE PAVEMENT SHALL BE CLEANED AT THE CLOSE OF EACH DAYS OPERATION AND AS OFTEN AS NECESSARY BEFORE THAT TIME. FAILURE TO COMPLY SHALL BE CAUSE TO STOP CONSTRUCTION. CONTRACTOR SHALL ALSO COMPLY WITH THE LOCAL AIR POLLUTION CONTROL ORDINANCE.

11. ALL GRAVEL AND DIRT ROADS, STREETS OR DRIVEWAYS USED SHALL BE MAINTAINED BY GRADING, PLACING DUST PALLIATIVES, AND MAINTENANCE GRAVEL IN SUFFICIENT QUANTITIES TO ELIMINATE DUST AND MAINTAIN TRAFFIC AS DIRECTED BY THE AGENCY.

12. CONTRACTOR SHALL PROVIDE ALL NECESSARY SHEETING, SHORING, DEWATERING, BRACING, TRENCH BOXES, ETC., TO PERFORM WORK SAFELY AND PROTECT EXISTING UTILITIES AND IMPROVEMENTS.

13. THE FLOW IN THE EXISTING SEWERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

14. CULVERTS, DITCHES, DRAIN TILES, TILE FIELD, DRAINAGE STRUCTURES, ETC., THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY RESTORED.

15. ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR'S OPERATION, SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

16. AFTER ALL THE PIPE, STRUCTURES, ETC., HAVE BEEN LAID, CONSTRUCTED, AND BACKFILLED, THE SYSTEM SHALL BE TESTED AND FINAL INSPECTED. THE INSPECTION AND TESTING SHALL CONSIST OF A FIRST INSPECTION, TELEVISION INSPECTION (IF APPLICABLE) TESTING, AND FINAL INSPECTION AND MEASUREMENT. THE CONTRACTOR SHALL PROVIDE THE NECESSARY SUPERVISION, LABOR, TOOLS, EQUIPMENT, AND THE MATERIALS NECESSARY FOR THE TESTS WHICH SHALL BE CONDUCTED IN THE PRESENCE OF THE ENGINEER. THE ENGINEER SHALL BE NOTIFIED TWO (2) WORKING DAYS IN ADVANCE OF ALL TESTING.

    THE FIRST INSPECTION SHALL BE COMPLETED AND ALL REPAIRS MADE IN AMPLE TIME SO THAT THE TELEVISION INSPECTION OF THE UNDERGROUND PORTION OF THE SYSTEM CAN BE COMPLETED WITHIN FOUR (4) WEEKS OF THE COMPLETION OF THE CONSTRUCTION. WHEN RE-TELEVISION IS NECESSARY, AN ADDITIONAL TWO (2) WEEKS WILL BE ALLOWED FOR COMPLETION. TESTING OF THE SYSTEM AS HEREIN DESCRIBED SHALL IMMEDIATELY FOLLOW THE TELEVISION INSPECTION AND SHALL BE COMPLETED WITHIN A TWO (2) WEEK PERIOD.

    FAILURE TO MAINTAIN A SCHEDULE IN COMPLIANCE WITH THESE TERMS WILL AUTOMATICALLY CAUSE THE STOPPAGE OF OTHER WORK AT THE PARTICULAR SITE IN QUESTION UNTIL SUCH TIME AS THE FINAL INSPECTION OF THE COMPLETED UNDERGROUND PORTION OF THE SYSTEM HAS PROGRESSED TO ACCEPTABLE LIMITS.

    THE CONTRACTOR SHALL HAVE THE UNDERGROUND PORTION OF THE SEWER SYSTEM READY FOR THE FIRST INSPECTION WITHIN TWO (2) WEEKS AFTER THE COMPLETION OF UTILITY.

    THE FIRST INSPECTION SHALL CONSIST OF A VISIBLE AND AUDIBLE CHECK OF SEWERS, MANHOLES, GATE WELLS, AND OTHER STRUCTURES TO ASCERTAIN THAT THE STRUCTURE STEPS HAVE BEEN PLACED, ALL LIFT HOLES PLUGGED, THE CHANNELING OF THE MANHOLE BOTTOMS COMPLETED, ALL VISIBLE OR AUDIBLE LEAKS STOPPED, ALL PIPE HAS BEEN PLACED STRAIGHT AND TRUE TO THE PROPER LINES AND ELEVATION, THE REQUIRED ADJUSTING RINGS AND FRAME AND COVER PROPERTY INSTALLED, ALL TRENCHES AND STRUCTURES BACKFILLED IN AN ACCEPTABLE MANNER AND THAT THE SYSTEM HAS BEEN THOROUGHLY CLEANED.

    THE FIRST INSPECTION SHALL BE CONSIDERED COMPLETED WHEN ALL THE REPAIRS HAVE BEEN MADE AND THE SYSTEM IS READY FOR TELEVISION INSPECTION AND SUBSEQUENT TESTING.

    THE CONTRACTOR SHALL PROVIDE FOR TELEVISION INSPECTION OF THE SANITARY SEWER LINES.

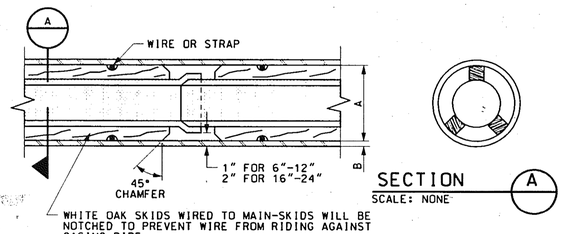
    THE CONTRACTOR SHALL ARRANGE FOR, ENGAGE, AND PAY ALL EXPENSES INVOLVED FOR THE SERVICES OF A COMPETENT COMPANY TO PERFORM THIS TELEVISION INSPECTION.

    THE TELEVISION INSPECTION SHALL BE OBSERVED BY REPRESENTATIVES OF THE OWNER, ENGINEER, AND THE CONTRACTOR. ANY TELEVISION VIEWING PERFORMED IN THE ABSENCE OF THE ENGINEER WILL NOT BE CONSIDERED AS A PART OF THE FINAL INSPECTION.

    THE INSPECTION SHALL INVOLVE THE VISUAL OBSERVATION BY CLOSED CIRCUIT TELEVISION OF ALL SANITARY SEWER INSTALLED AS PART OF THIS CONTRACT. THE INSPECTION SHALL BE PERFORMED AT A RATE OF SPEED WHICH WILL ALLOW EXAMINATION OF ALL POINTS OF INFILTRATION, CRACKED OR CRUSHED PIPE, DEFECTIVE JOINTS, MISALIGNMENT IN LINE OR GRADE, LOCATION OF ALL WYE OPENINGS AND ANY DEFECTS OR ITEMS OF POOR WORKMANSHIP WHICH MAY APPEAR. ANY ITEMS WHICH, IN THE OPINION OF THE ENGINEER, REQUIRE REPAIR SHALL BE PRECISELY LOCATED AND PHOTOGRAPHED ALONG WITH A DETAILED STATEMENT OF THE CONDITION. THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION TO REPAIR ALL SUCH DEFECTS INCLUDING EXCESSIVE INFILTRATION AT ANY SPECIFIC LOCATION, EVEN THOUGH THE INFILTRATION LIMITS AS HEREIN SPECIFIED HAVE NOT BEEN EXCEEDED FOR THE ENTIRE LENGTH OF SEWER BEING INSPECTED. FOLLOWING COMPLETION OF THE REPAIR, THE ENGINEER AT THEIR DISCRETION, MAY REQUIRE A SECOND TELEVISION INSPECTION OF ANY REPAIRED AREAS. THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED IN PERFORMING THIS RE-INSPECTION.

    AFTER ALL TESTING, TELEVISION INSPECTION, FINAL RESTORATION AND CLEAN-UP HAS BEEN COMPLETED, A FINAL INSPECTION AND MEASUREMENT WILL BE DONE. THE FINAL INSPECTION SHALL BE REQUESTED BY THE CONTRACTOR AND CONSIST OF, BUT IS NOT LIMITED TO, CHECKING FOR PROPER ALIGNMENT, PROPER GRADE, CLEANLINESS, LEAKS, CONFORMANCE TO THE PLANS AND SPECIFICATION, PROPER STRUCTURAL AND MECHANICAL ADJUSTMENTS, AND RESTORATION. FINAL MEASUREMENT INCLUDES STRUCTURE ELEVATIONS, DISTANCES BETWEEN STRUCTURES, AND CONFIRMATION UTILITIES ARE LOCATED WITHIN EASEMENT AND RIGHT-OF-WAY AREAS.

    SUCCESSFUL COMPLETION OF ANY TEST OR INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM THEIR RESPONSIBILITY TO CORRECT ANY DEFICIENCY OR NONCONFORMANCE TO THE PLANS OR SPECIFICATIONS WHICH MAY THEREAFTER BECOME KNOWN.

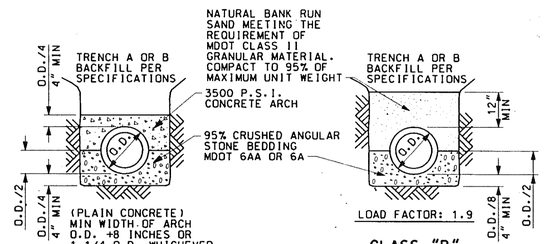


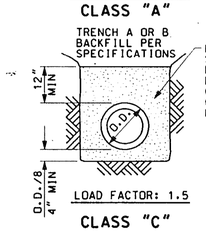
DIA OF SEWER	DIA OF MAIN	MIN "A"	ROAD CROSSING MIN "B"	RAILROAD CROSSING MIN "B"
	6"	16"	.375	.375
	8"	16"	.375	.375
	12"	20"	.375	.438
10"	16"	24"	.375	.500
12" & 15"	20"	30"	.375	.500
18"	24"	36"	.375	.500

CASING PIPE SHALL BE WELDED STEEL PIPE A.S.T.M. A-252, GR 2 UNLESS OTHERWISE SPECIFIED.

NOTES:
1. NO WATER SHALL BE USED IN BORING UNDER RAILROADS.
2. MAINTAIN MINIMUM OF 5'-6" OF COVER BETWEEN BASE OF RAIL AND TOP OF CASING.
3. THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL, BUT SHALL NOT BE TIGHTLY SEALED.
4. WHEN BORING ALL VOIDS OUTSIDE OF CASING PIPE SHALL BE FILLED BY MEANS OF PRESSURE GROUTING WITH 1:3 CEMENT-SAND MORTAR. THIS WORK MUST BE ACCOMPLISHED WITHIN 24 HOURS AFTER THE CROSSING HAS BEEN COMPLETED. BORING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE THE EDGES OF THE PAVEMENT.
5. SKIDS ARE TO BE MINIMUM OF 80% OF PIPE LENGTH.

STANDARD CASING SECTION





MAX WIDTH OF TRENCH AT 12" ABOVE TOP OF PIPE
6" THRU 12" PIPE - 30" WIDE
15" THRU 36" PIPE - O.D. +16"
42" THRU 60" PIPE - O.D. +20"
OVER 60" PIPE - OUTSIDE DIAMETER OF PIPE +24"
MIN WIDTH OF TRENCH 12" ABOVE THE TOP OF PIPE SHALL BE 6" ON EACH SIDE OF PIPE

RIGID PIPE BEDDING DETAILS

DESIGN	ORIGINAL ISSUE	INITIALS DMN	DATE JUNE 2002	
DRAFTING	ISSUED FOR BID			
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED			
APPROVED				

DATE	REVISION	BY
	FINAL MEASURE	

TOPO		LEVELS	
F.B.	PAGE	F.B.	PAGE

CLIENT

CHARTER TOWNSHIP OF VAN BUREN

Wade-Trim
P.O. Box 10
25251 Northline Road, Taylor, MI 48180
734-947-9700 / 800-482-2864
FAX No. 734-947-9726

TITLE

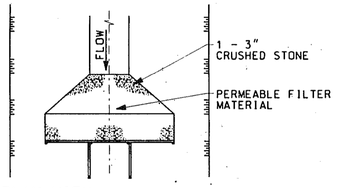
MISCELLANEOUS DETAILS

SCALE NONE

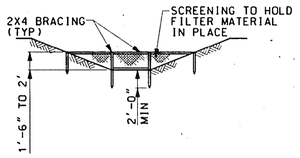
SHEET OF

FILE NO. MD1

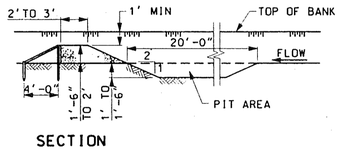
JOB NO.



PLAN VIEW



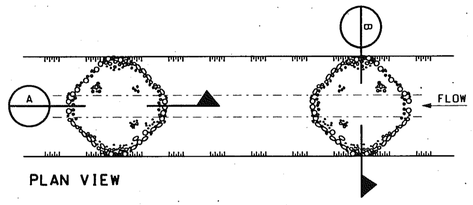
END VIEW



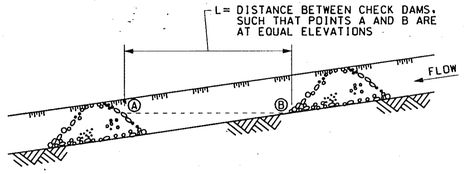
SECTION

NOTES:
1. PLACE DITCH SEDIMENT TRAP PRIOR TO ON-SITE CONSTRUCTION WORK.
2. MAINTAIN DITCH SEDIMENT TRAP IN GOOD OPERATION DURING PROJECT & REMOVE AT END OF PROJECT.
3. CHANNEL TO BE RESTORED TO ORIGINAL CONDITION OR BETTER AS DIRECTED BY THE ENGINEER.
4. CRUSHED STONE INCLUDED WITH DITCH SEDIMENT TRAP.

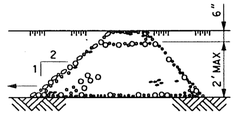
DITCH SEDIMENT TRAP
N.T.S.



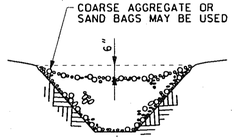
PLAN VIEW



CROSS-SECTION



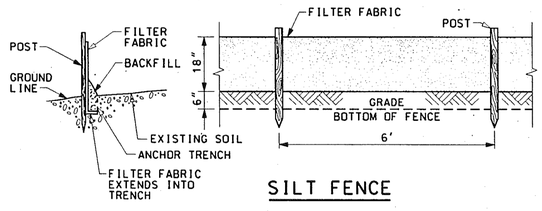
SECTION A-A



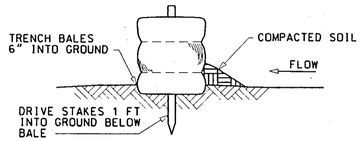
SECTION B-B

NOTE:
CHECK DAMS GREATER THAN TWO FEET IN DEPTH MAY SERIOUSLY IMPACT THE FLOW CHARACTERISTICS OF THE DITCH.

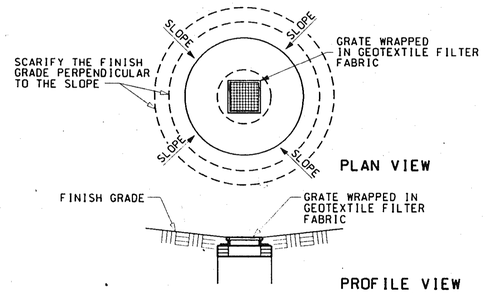
CHECK DAMS
N.T.S



SILT FENCE



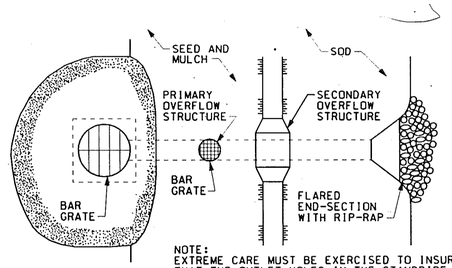
STRAW BALE SEDIMENT SCREEN DETAIL



LOW POINT INLET FILTER

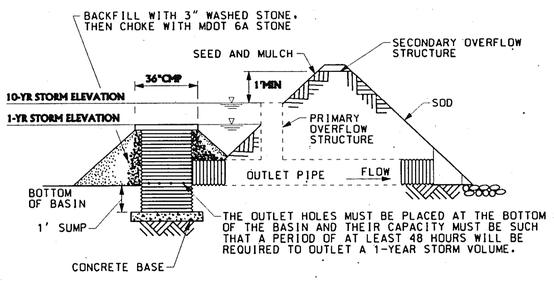
SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. EROSION AND ANY SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MANMADE OPEN DITCHES. STREAMS. STORM DRAINS. LAKES.AND PONDS.
4. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION; SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
5. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES. DITCHES. AND OTHER EARTH CHANGES HAS BEEN ACCOMPLISHED AND APPROVED BY THE AGENCY WITH JURISDICTION.
6. DEBRIS FROM THE PROJECT SHALL BE LEFT ON THE SITE BY DELIVERY OR CONSTRUCTION VEHICLES THROUGH THE USE OF CLEAN STONE EXITS. SHOULD THE STONE BECOME INEFFECTIVE IT WILL BE REPLACED. ALL CONSTRUCTION TRAFFIC WILL USE THE CLEAN STONE EXITS.
7. EARTH EMBANKMENT BRIDGES PLACED OVER NEW PAVEMENT SHALL BE LOCATED ONLY AT PAVEMENT HIGH-POINTS AND SHALL HAVE STRAW BALES PLACED ALONG EACH SIDE OF THE BRIDGE FOR THE WIDTH OF THE PAVEMENT.
8. IMMEDIATELY AFTER SEEDING. MULCH ALL SEEDED AREAS WITH UNWEATHERED SMALL GRAIN STRAW OR HAY SPREAD UNIFORMLY AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE. ANCHOR MULCH WITH DISC-TYPE MULCH ANCHORING TOOL OR OTHER MEANS AS APPROVED BY THE AGENCY WITH JURISDICTION.
9. ALL MUD. DIRT. AND DEBRIS TRACKED OR SPILLED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
10. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES. CHANNELS. DITCHES. OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 CALENDAR DAYS AFTER FINAL GRADING OR FINAL EARTH CHANGES HAVE BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES. TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE ESTABLISHED. ALL PERMANENT SOIL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED. ALL DRAIN BANKS DISTURBED BY CONSTRUCTION SHALL BE RESTORED WITHIN FIVE CALENDAR DAYS AND SOD PEGGED IN PLACE.
11. PARTICULAR CARE SHOULD BE TAKEN WHEN WORKING ALONG THE PERIMETER OF THE SITE. IN NO EVENT SHALL WORK AREA EXTEND BEYOND THE LIMITS INDICATED ON THE PLANS.
12. SHOULD IT BE NECESSARY FOR THE CONTRACTOR TO DEWATER THE GROUND IN THE COURSE OF CONSTRUCTING THE PROPOSED UTILITY. THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY SOIL EROSION CONTROL DEVICE IN A MANNER THAT WILL FILTER ALL DISCHARGED WATER FROM THE DEWATERING OPERATION. IN NO INSTANCE SHALL THE DEWATERING DISCHARGE BE PERMITTED TO FLOW UNFILTERED FROM THE CONSTRUCTION SITE.
13. THE CONTRACTOR SHALL CONTROL THE DUST ON THE SITE DURING THE LIFE OF THE CONTRACT. IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS OF THE COMMUNITY THIS DUST CONTROL SHALL BE ACCOMPLISHED BY THE APPLICATION OF A POSITIVE DUST PICK-UP METHOD WITH WATER ON HARD SURFACES. SUCH DUST CONTROL MATERIALS SHALL BE APPLIED AS OFTEN AS IS NECESSARY IN THE OPINION OF THE COMMUNITY TO CONTROL THE DUST.
14. SHOULD THE SOIL EROSION CONTROL REQUIREMENTS BE NEGLECTED OR NOT ADEQUATELY FOLLOWED. THE COMMUNITY MAY REQUIRE THE CONTRACTOR TO CEASE CONSTRUCTION OPERATIONS AND TO APPLY HIS ENTIRE FORCE TO MEET THE REQUIREMENTS BEFORE PROCEEDING FURTHER WITH THE PROJECT.
15. ALL WORK CONNECTED WITH SOIL EROSION AND SEDIMENTATION CONTROL. EITHER TEMPORARY OR PERMANENT. AS REQUIRED BY THE SOIL EROSION CONTROL PERMIT. IS TO BE IMPLEMENTED DURING CONSTRUCTION AS STIPULATED IN ACT 347.



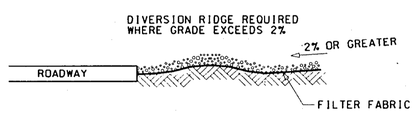
NOTE:
EXTREME CARE MUST BE EXERCISED TO INSURE THAT THE OUTLET HOLES IN THE STANDPIPE. DO NOT BECOME CLOGGED WITH SEDIMENT.

PLAN VIEW

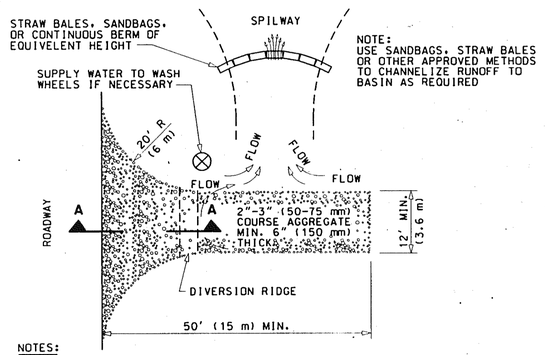


PROFILE VIEW

DETENTION BASIN OUTLET FILTER (CMP)
N.T.S

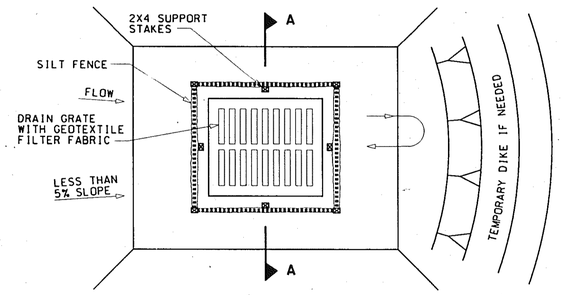


SECTION A-A

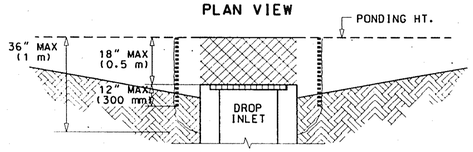


NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING. REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY. WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED. IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE / EXIT



PLAN VIEW



SECTION A-A

NOTES:
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL. NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5 %).
2. GEOTEXTILE FABRIC MUST BE SECURELY STAPLED TO CORNER OF POSTS. WITH WOOD LATH. (AMOCO ECOLOFENCE 24 OR EQUIVALENT).
3. ADD 2x4 SUPPORT POSTS TO ENSURE STABILITY. SECURELY STAPLE FABRIC TO POSTS.
4. THE TOP OF THE FABRIC (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

SILT FENCE DROP INLET SEDIMENT BARRIER

VAN BUREN NOTES

1. DUST CONTROL SHALL BE ACCOMPLISHED BY THE APPLICATION OF CALCIUM CHLORIDE AND WATER ON TEMPORARY SURFACES.

VIEW:SOIL1 PLOTS:

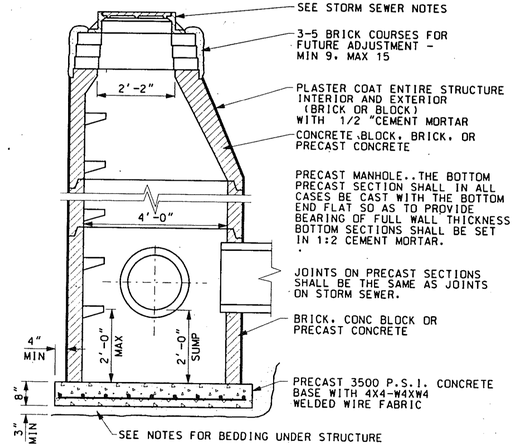
Grid:F3
FILENAME:P:\VBN2011\03TVC\COD-DATA\STANDARD DETAILS\VBNDET2.DGN:11/4/2021 14:20:58

DESIGN	ORIGINAL ISSUE	INITIALS DMN	DATE JUNE 2002	DATE	REVISION	BY	TOPO F.B.	TOPO PAGE	LEVELS F.B.	LEVELS PAGE	CLIENT
DRAFTING	ISSUED FOR BID										CHARTER TOWNSHIP OF VAN BUREN
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED										
APPROVED					FINAL MEASURE						

Wade-Trim
P.O. Box 10
25251 Northline Road. Taylor. MI 48180
734-947-9700 / 800-482-2864
FAX No. 734-947-9726

TITLE
SOIL EROSION
AND
SEDIMENTATION CONTROL DETAIL

SCALE NONE
SHEET OF
FILE NO. SE1
JOB NO.



M.H. STEPS SHALL BE SPACED AS FOLLOWS:
CONC BLK. M.H.....18" CENTERS
BRICK M.H.....15" CENTERS
PRECAST M.H. .....16" CENTERS

TOP STEP TO BE 24" MAX BELOW TOP OF FRAME

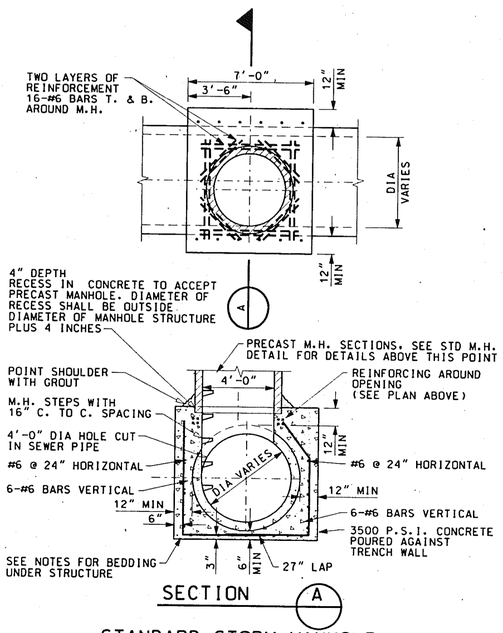
MIN CONE HEIGHTS AS FOLLOWS:
BRICK — CONCENTRIC 3'-0"
BLOCK — CONCENTRIC 3'-0"
PRECAST — ECCENTRIC 2'-8" OR 3'-4"

CONC BLOCK MANHOLE:
APPROVED CONC BLOCK
USE 6" OR 8" THICK BLOCK TO 16' DEPTH
USE 12" THICK BLOCK TO 24' DEPTH
16" BLOCK WALL BELOW 24' DEPTH

BRICK MANHOLE:
APPROVED BRICK
8" BRICK WALL TO 16' DEPTH
12" BRICK WALL TO 24' DEPTH
16" BRICK WALL BELOW 24'DEPTH

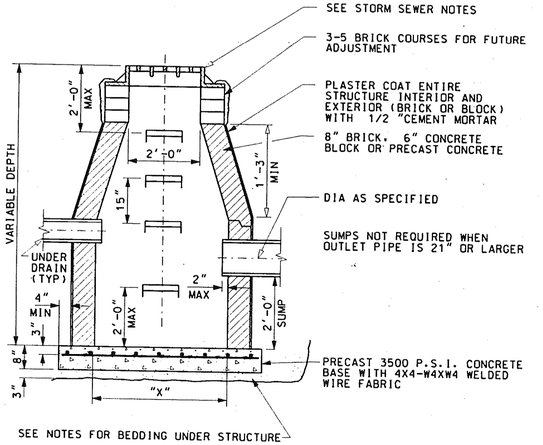
PRECAST MANHOLE:
ASTM C-478 UP TO 32' DEEP
WITH 5" THICK WALL

STANDARD STORM MANHOLE FOR SEWERS WITH OUTLETS OF 18" & UNDER



SECTION A

STANDARD STORM MANHOLE FOR 48" & LARGER SEWERS



DIAMETER OF OUTLET PIPE	"X" INSIDE DIA.
12" OR LESS	2'-0" MIN
15"-18"	4'-0" MIN
21"-30"	5'-0" MIN

NOTE:
MINIMUM OF TWO-10' LONG 6" DIAMETER PERFORATED UNDERDRAIN PIPE WITH GEOTEXTILE MATERIAL WRAP TO BE INSTALLED WITH EACH CATCH BASIN - SEE UNDERDRAIN DETAIL FOR INSTALLATION AND MATERIAL REQUIREMENTS.

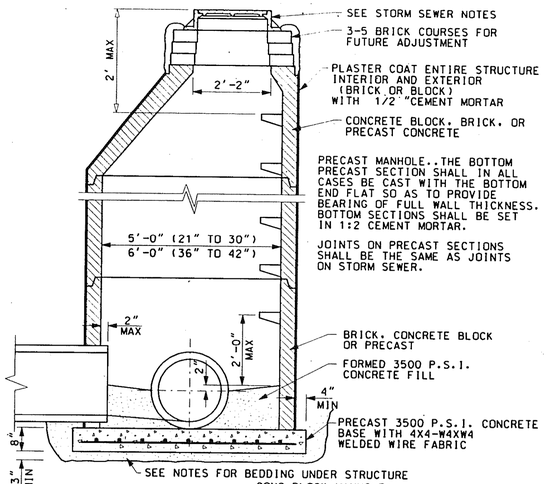
STANDARD CATCH BASIN

STORM SEWER NOTES

1. ALL STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE AGENCY OR AGENCIES HAVING JURISDICTION OF THE STORM SEWER AND CONSTRUCTION AREA. ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM WITH THE WAYNE COUNTY GENERAL NOTES (GN-1).
2. DETAILS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES, 180° APART. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS.
3. ALL STRUCTURES REQUIRE A MINIMUM OF 8-INCHES OF WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPE ENTERING THE STRUCTURE ARE LESS THAN 90° APART IN ANY DIRECTION.
4. ALL CASTING RIMS SHALL BE SET TO GRADE OR AS SHOWN ON THE PLANS.
5. NO MANHOLES OR OTHER STRUCTURES MAY BE INSTALLED WITHIN DRIVEWAYS, DRIVE APPROACHES, OR SIDEWALKS.
6. ALL CATCH BASIN LEADS SHALL BE 12-INCH DIAMETER C76, CL-IV CONCRETE UNLESS OTHERWISE NOTED.
7. MANHOLE STEPS TO BE GRAY IRON OR STEEL REINFORCED POLYPROPYLENE ASTM 2146, TYPE II, GRADE 49108.
8. CATCH BASIN AND INLET FRAME AND COVERS SHALL BE SPECIFIED AS FOLLOWS:
   A. WHEN LOCATED IN PAVEMENT GUTTER LINE, FRAME AND COVER SHALL BE E.J.I.W. NO. 5080, NEENAH R-3448-C TYPE "A" (RECTANGULAR), OR EQUIV.
   B. WHEN LOCATED IN PAVED AREAS OTHER THAN GUTTER LINE, FRAME SHALL BE E.J.I.W. NO. 1040 WITH TYPE "M1" COVER, NEENAH R-2077-C TYPE "D" COVER, OR EQUIV.
   C. WHEN LOCATED IN YARD AREAS, FRAMES SHALL BE E.J.I.W. NO. 1000 WITH TYPE "N" OR "M" COVER, NEENAH R-2077-B TYPE "D" OR "B" COVER, OR EQUIV.
9. MANHOLE FRAME AND COVER SHALL BE E.J.I.W. NO. 1000 OR NEENAH R-1570-A WITH SOLID COVER OR EQUAL.
10. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED SIX FEET.
11. ALL STRUCTURES SHALL HAVE CRUSHED STONE BEDDING. PLACE SAND BACKFILL WITHIN THREE FEET OF ALL STRUCTURES.
12. ALL STORM SEWER PIPE SHALL HAVE CLASS "B" BEDDING UNLESS OTHERWISE NOTED ON THE PLANS. SEE SHEET MD-1.
13. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
14. SEE MISCELLANEOUS DETAILS (MD1) FOR BEDDING DETAILS.
15. ALL DRAINAGE STRUCTURES LOCATED WITHIN PAVEMENT MUST HAVE UNDER DRAIN AS SHOWN.

VAN BUREN NOTES

1. FOR REAR YARD STORM SEWER SYSTEMS, THE FIRST STRUCTURE UPSTREAM OF THE MAINLINE STORM SEWER SHALL BE A STANDARD CATCH BASIN WITH SUMP. ADDITIONAL REAR YARD STORM STRUCTURES SHALL BE INLETS.
2. ALL STORM SEWER PIPE SHALL BE C76, CL-IV CONCRETE UNLESS OTHERWISE NOTED, WITH PREMIUM RUBBER O-RING JOINTS.
3. MINIMUM STORM SEWER PIPE SIZE SHALL BE 12-INCHES IN DIAMETER.
4. ROOF DRAINS SHALL BE CONNECTED DIRECTLY TO STORM SEWER STRUCTURES.



M.H. STEPS SHALL BE SPACED AS FOLLOWS:
CONC BLK. M.H.....18" CENTERS
BRICK M.H.....15" CENTERS
PRECAST M.H. .....16" CENTERS

TOP STEP TO BE 24" MAX BELOW TOP OF FRAME

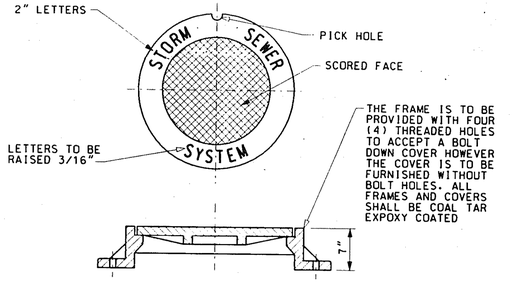
MIN CONE HEIGHTS AS FOLLOWS:
BRICK — CONCENTRIC 3'-0"
BLOCK — CONCENTRIC 3'-0"
PRECAST — ECCENTRIC 2'-8" OR 3'-4"

CONC BLOCK MANHOLE:
APPROVED CONC BLOCK
USE 6" OR 8" THICK BLOCK TO 16' DEPTH
USE 12" THICK BLOCK TO 24' DEPTH
16" BLOCK WALL BELOW 24' DEPTH

BRICK MANHOLE:
APPROVED BRICK
8" BRICK WALL TO 16' DEPTH
12" BRICK WALL TO 24' DEPTH
16" BRICK WALL BELOW 24'DEPTH

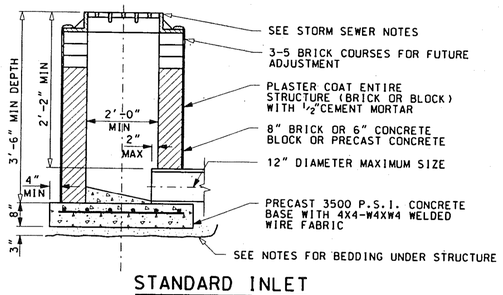
PRECAST MANHOLE:
ASTM C-478 UP TO 32' DEEP
WITH 5" THICK WALL

STANDARD STORM MANHOLE FOR SEWERS 21" TO 42"

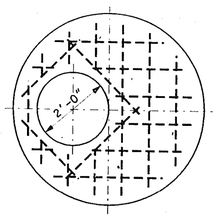


* FRAMES AND COVERS SHALL BE COAL TAR EPOXY COATED

STANDARD MANHOLE FRAME AND COVER



STANDARD INLET

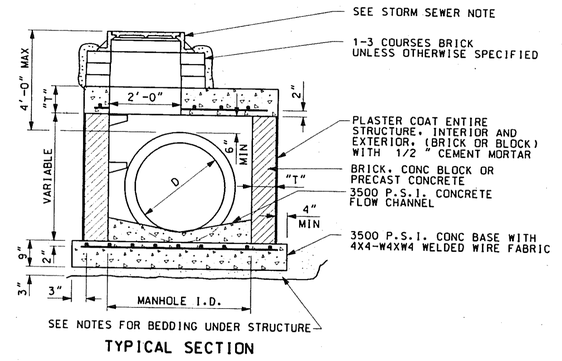


OUTLET "D"	M.H. I.D.	TOP SLAB "T"	WALLS "T"	REINF STEEL *
** 24" OR LESS	4'-0"	9"	8"	#6@9" E.W.
30"	4'-0"	9"	8"	#6@9" E.W.
36"	4'-0"	9"	12"	#6@9" E.W.
42"	5'-0"	10"	12'	#6@9" E.W.
48" 54"	6'-0"	11"	12'	#7@9" E.W.

* TOP SLAB

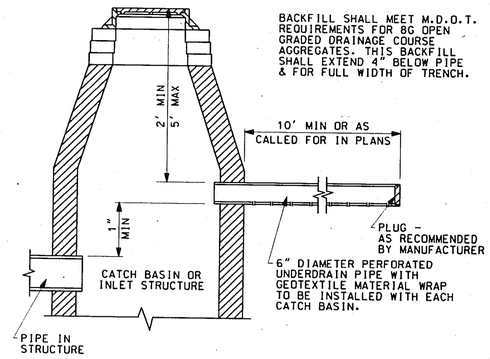
** 2' SUMP REQ'D FOR MANHOLE WITH OUTLET OF 18" & UNDER

TOP SLAB

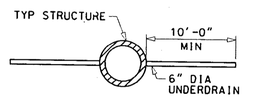


TYPICAL SECTION

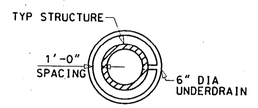
TYPICAL MANHOLE / CATCH BASIN "D"



STANDARD UNDERDRAIN



TYPICAL UNDERDRAIN PARALLEL W/CURB



TYPICAL UNDERDRAIN IN PARKING LOT

DESIGN	ORIGINAL ISSUE	INITIALS DMN	DATE JUNE 2002
DRAFTING	ISSUED FOR BID		
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED		
APPROVED			

DATE	REVISION	BY
	FINAL MEASURE	

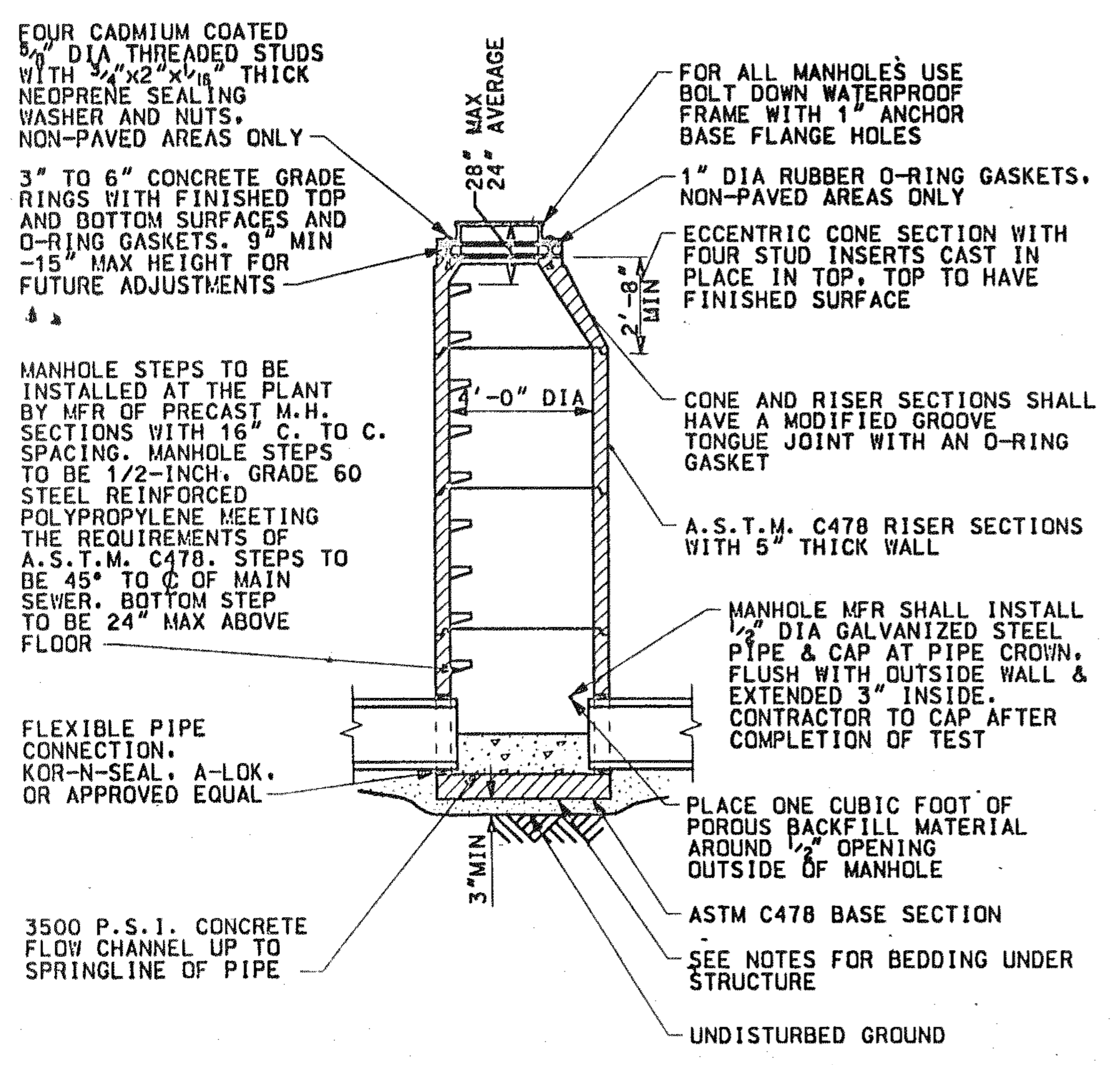
TOPO F.B.	TOPO PAGE	LEVELS F.B.	LEVELS PAGE

CLIENT
CHARTER TOWNSHIP OF VAN BUREN

Wade-Trim
P.O. Box 10
25251 Northline Road, Taylor, MI 48180
734-947-9700 / 800-482-2864
FAX No. 734-947-9726

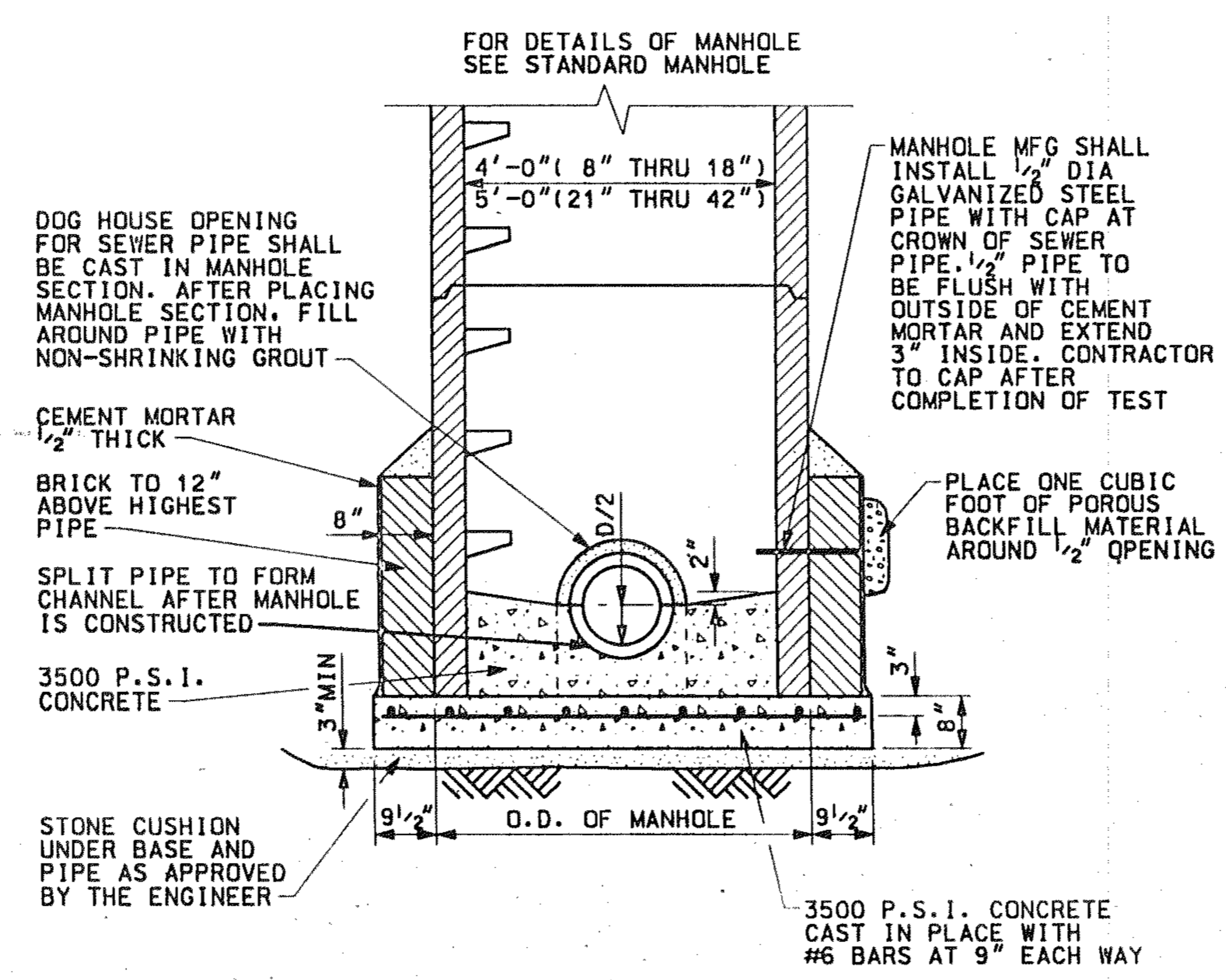
TITLE
STANDARD STORM SEWER DETAILS

SCALE NONE
SHEET OF
FILE NO. ST1
JOB NO.

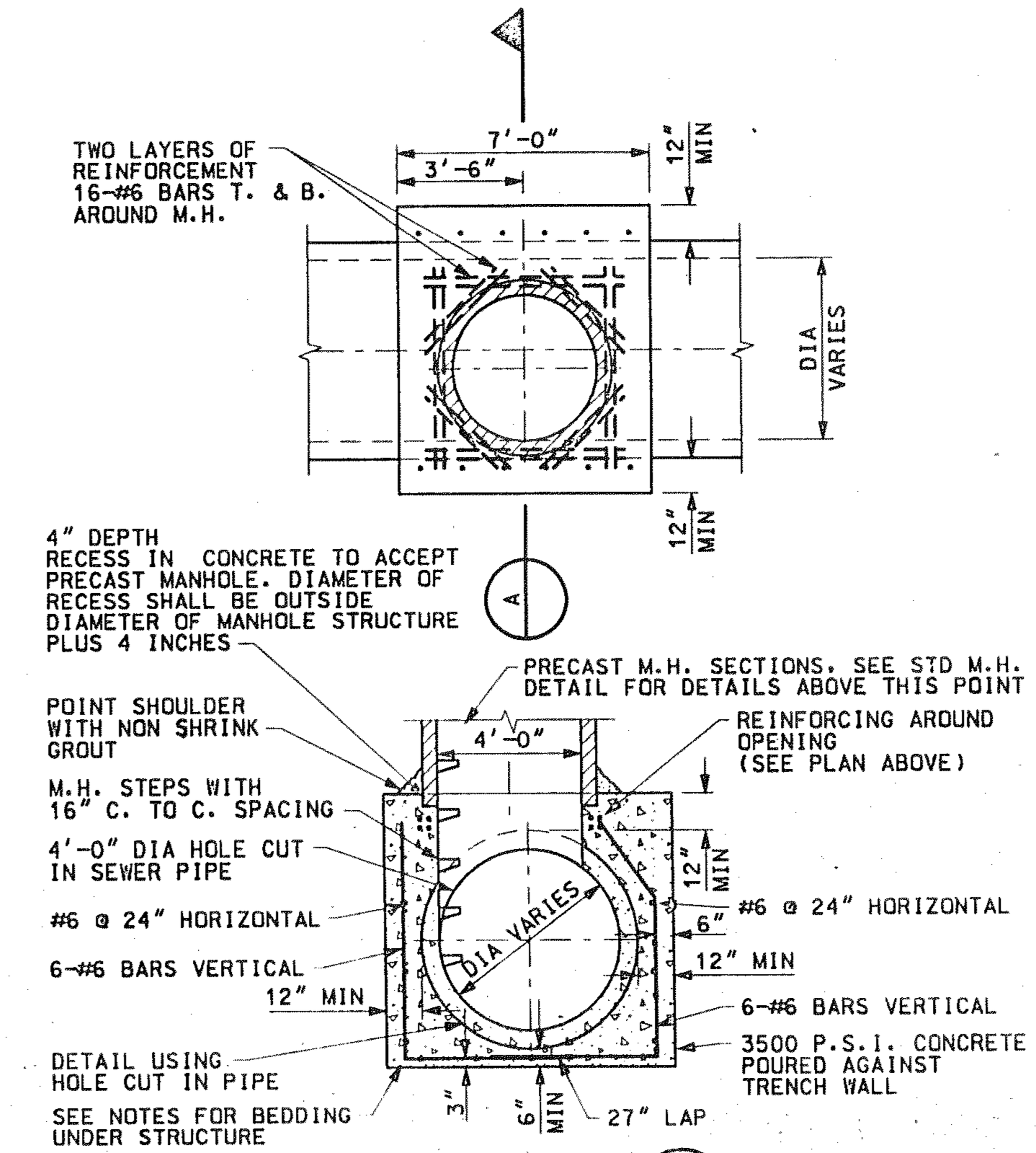


STANDARD SANITARY MANHOLE
FOR SEWERS 8" THROUGH 18"

DOG HOUSE CUT OUT SIZES	
SEWER SIZE	MAX CUT OUT SIZE
8" THRU 10"	17 1/2"
12" THRU 15"	20"

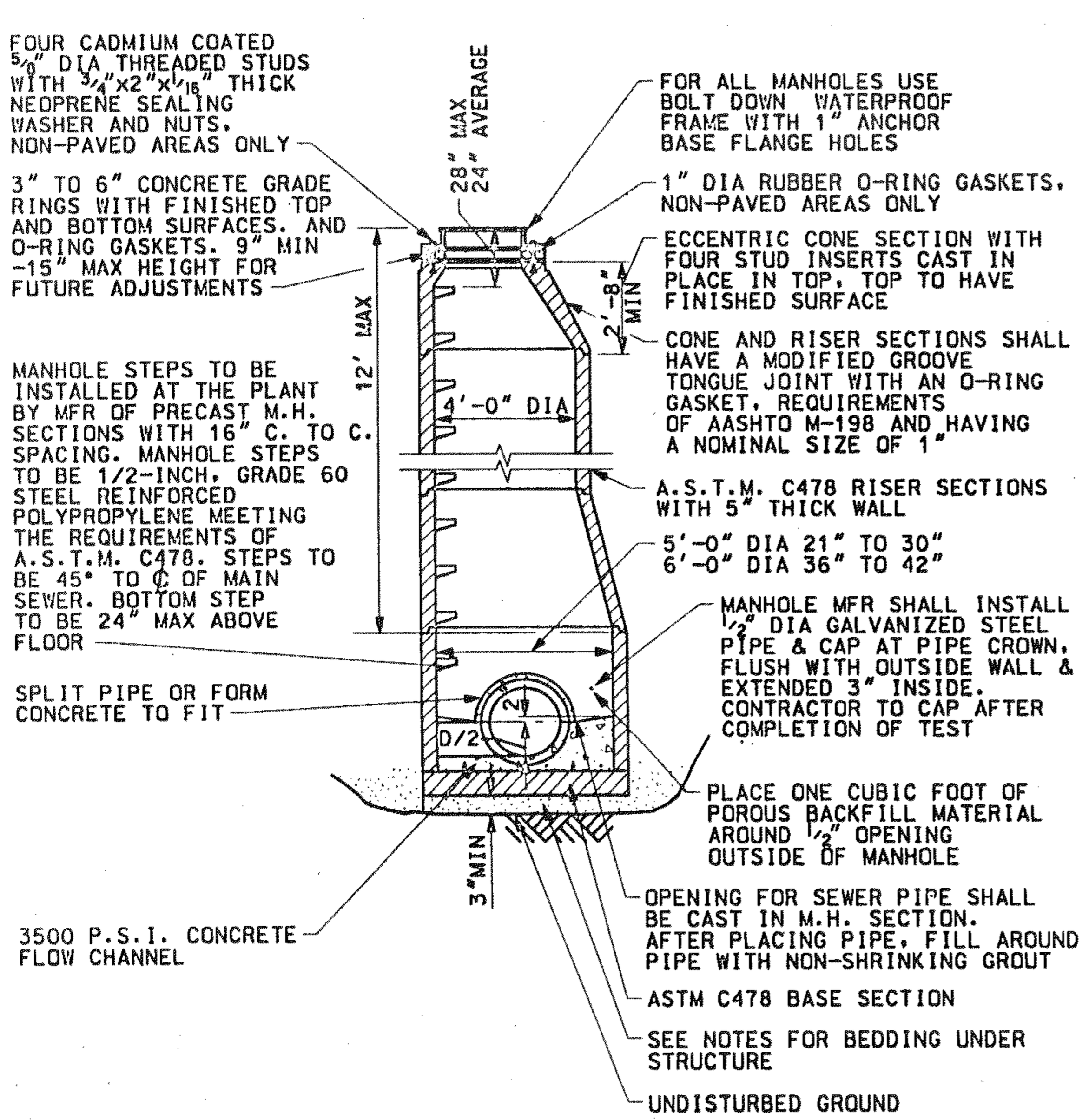


STANDARD SANITARY MANHOLE ON
EXISTING SEWERS 8" THROUGH 42"



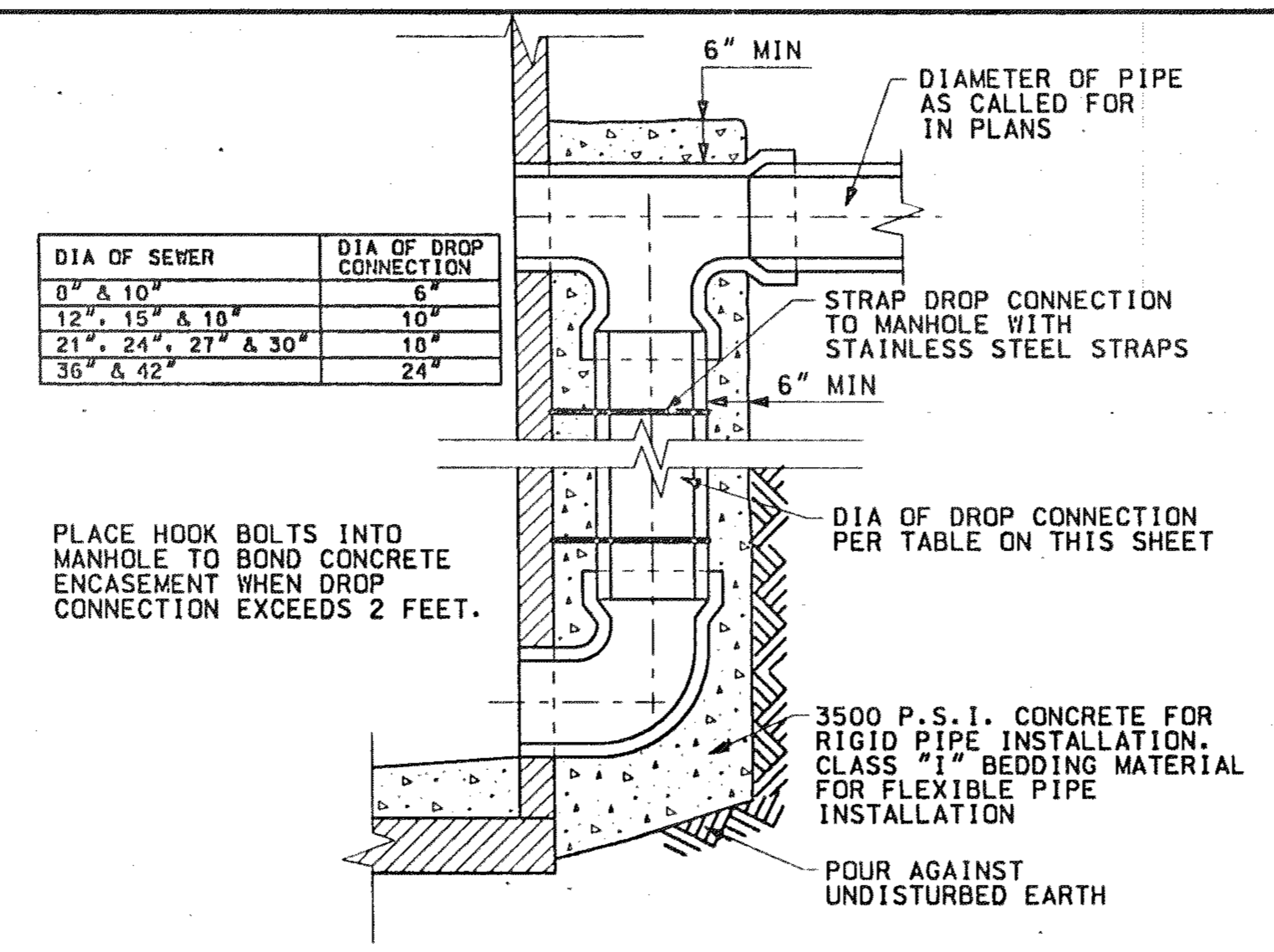
SECTION A

STANDARD SANITARY MANHOLE
FOR 48" & LARGER SEWERS

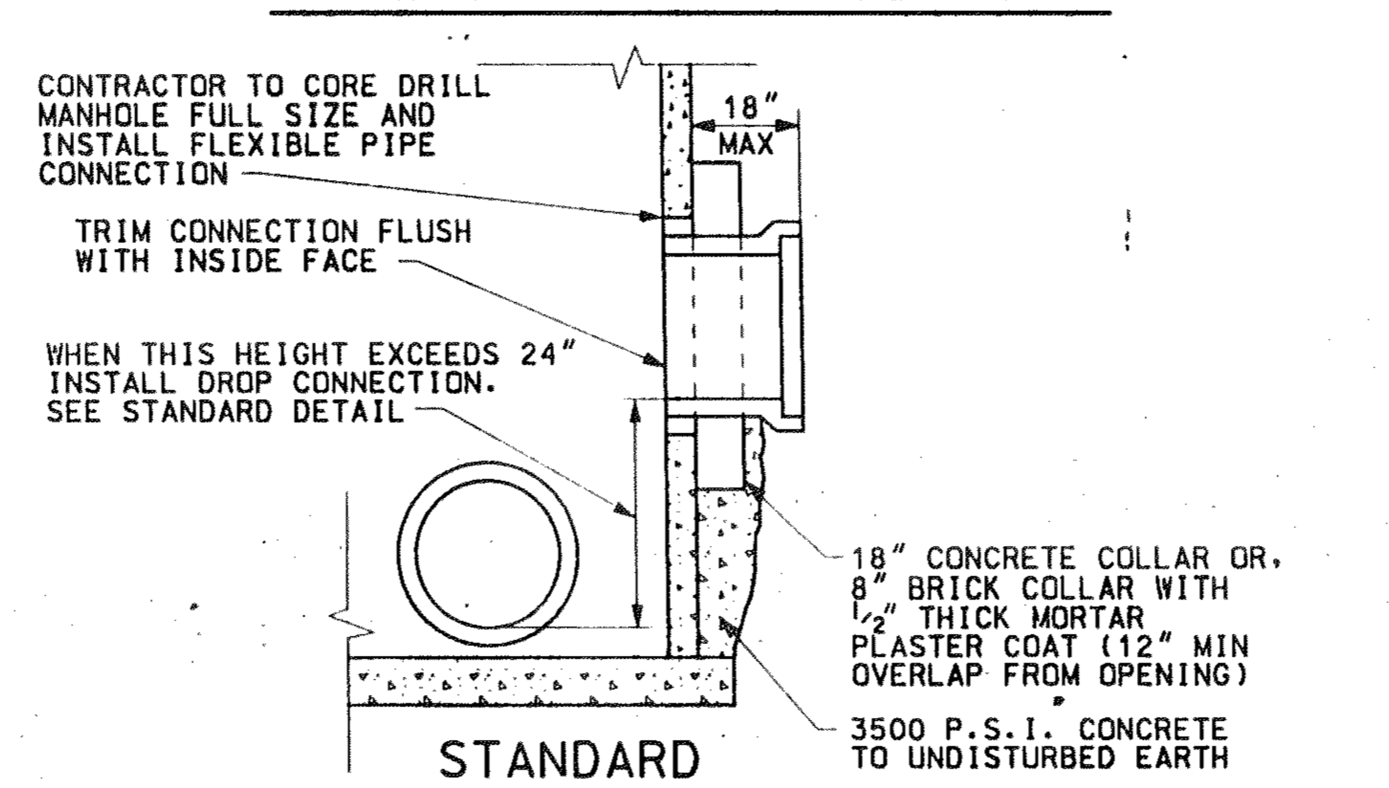


STANDARD SANITARY MANHOLE
FOR SEWERS 21" THROUGH 42"

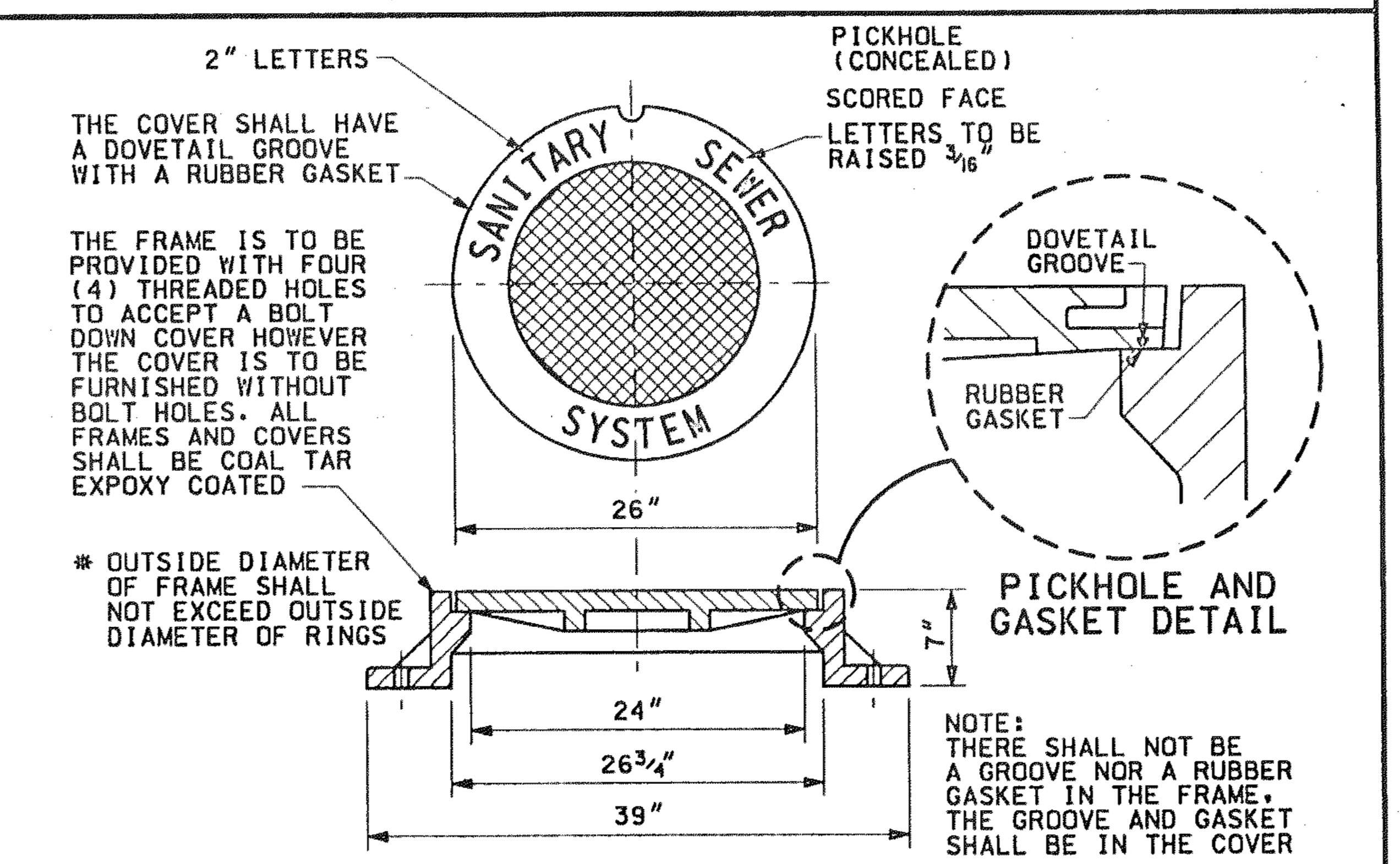
DIA OF SEWER	DIA OF DROP CONNECTION
8" & 10"	6"
12", 15" & 18"	10"
21", 24", 27" & 30"	18"
36" & 42"	24"



EXTERIOR DROP CONNECTION

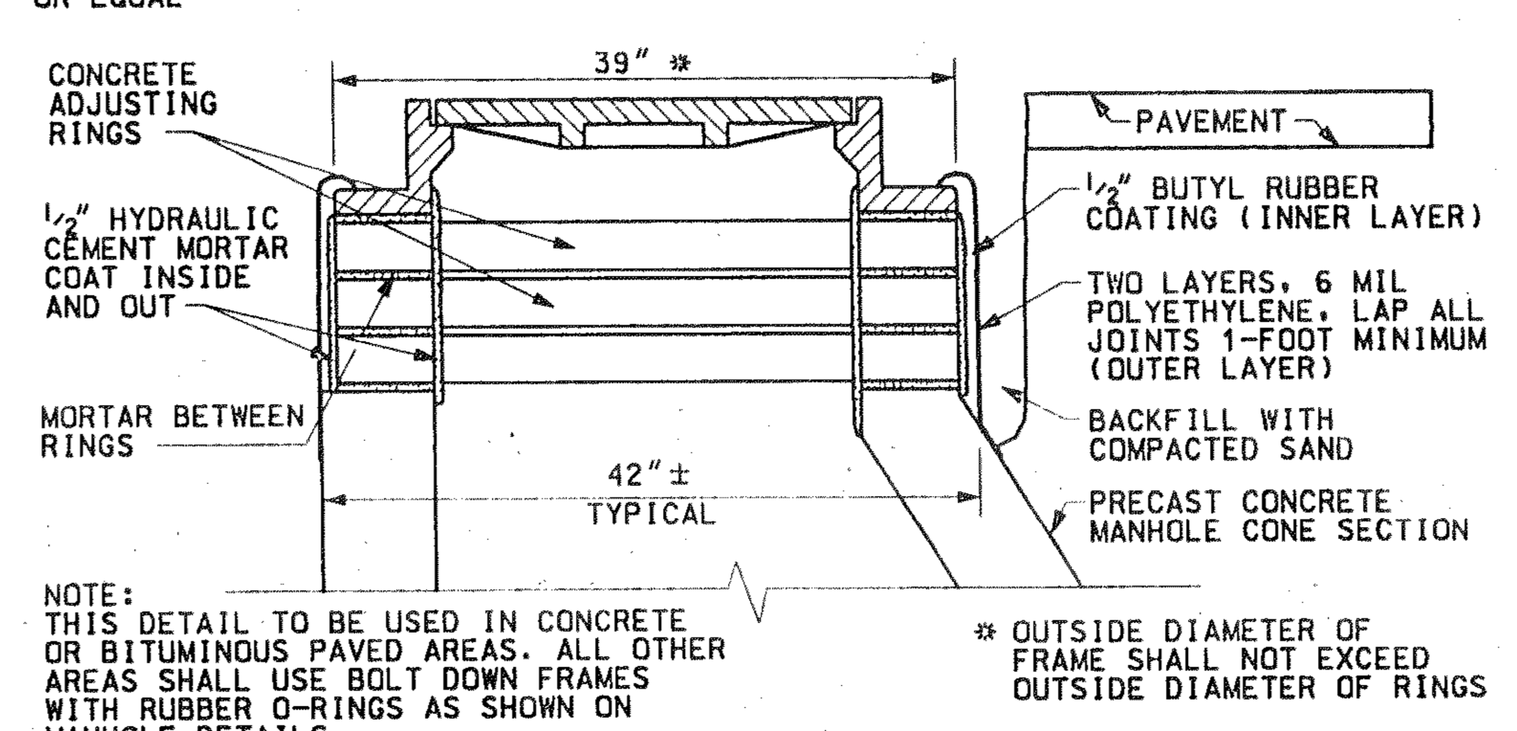


STANDARD
CONNECTION TO EXISTING MANHOLE (WCD-7)



STANDARD FRAME AND COVER

E.J.I.W. #1040-1 ZPT FRAME WITH 1040 AGS (NARROW SKIRT) LID (SPECIAL ORDER), NEENAH R-1916-F FRAME WITH R-1642 T57 LID OR EQUAL



NOTE:
THIS DETAIL TO BE USED IN CONCRETE OR BITUMINOUS PAVED AREAS. ALL OTHER AREAS SHALL USE BOLT DOWN FRAMES WITH RUBBER O-RINGS AS SHOWN ON MANHOLE DETAILS.

* OUTSIDE DIAMETER OF FRAME SHALL NOT EXCEED OUTSIDE DIAMETER OF RINGS

EXTERNAL FRAME SEAL DETAIL

SANITARY SEWER NOTES

1. ALL SEWER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE COMMUNITY SEWER DEPARTMENT AND ANY OTHER AGENCY HAVING JURISDICTION OF THE CONSTRUCTION AREA. IN ADDITION, ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM WITH THE WAYNE COUNTY GENERAL NOTES (GN-1).
2. DETAILS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES ENTERING, 180° APART. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS.
3. THE MANHOLE STRUCTURE REQUIRES A MINIMUM OF 8 INCHES OF CONCRETE WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPE ENTERING THE STRUCTURE ARE LESS THAN 90° APART IN ANY DIRECTION.
4. CONSTRUCTION SHALL NOT COMMENCE WITHOUT A REPRESENTATIVE OF THE OWNER PRESENT.
5. ALL MANHOLES SHALL USE ECCENTRIC CONES PLACED WITH STEPS AWAY FROM THE ROAD UNLESS DIRECTED OTHERWISE.
6. ALL MANHOLES SHALL BE PROVIDED WITH WATER TIGHT MANHOLE COVERS AND, RIMS SHALL BE SET TO GRADE OR AS INDICATED ON THE PLANS.
7. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
8. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED SIX FEET.
9. ALL STRUCTURES SHALL HAVE 95% CRUSHED ANGULAR STONE BEDDING (MDOT 6AA OR 6A) TO THE SPRING LINE OF PIPE. PLACE SAND BACKFILL WITHIN 3 THREE FEET OF ALL STRUCTURES.
10. EXTERIOR DROP CONNECTIONS ARE REQUIRED WHENEVER A SEWER INVERT IS 2.0 FEET OR GREATER ABOVE THE MANHOLE FLOW CHANNEL INVERT. INTERIOR DROP CONNECTIONS ARE NOT ALLOWED.
11. NO SEWERS SHALL BE CONSTRUCTED LESS THAN 10-INCH DIAMETER WITHOUT SPECIFIC APPROVAL OF THE COMMUNITY SEWER DEPARTMENT.
12. ALL RIGID SANITARY SEWER PIPE SHALL BE CLASS "B" BEDDING, ALL FLEXIBLE PIPE SHALL BE CLASS "I" BEDDING, UNLESS OTHERWISE NOTED ON THE PLANS. SEE SHEET MD-1.
13. PLACE ONE 6-INCH WYE FOR EACH LOT OR PARCEL 100 FEET OR LESS IN WIDTH OR EVERY 100 FEET FOR LOTS OR PARCELS IN EXCESS OF 100 FEET ON SANITARY SEWERS UNLESS OTHERWISE NOTED.
14. NO CONNECTION RECEIVING STORM WATER, SURFACE WATER, OR GROUND WATER SHALL BE MADE TO SANITARY SEWERS.
15. NO FOOTING DRAINS SHALL BE CONNECTED TO THE BUILDINGS SANITARY SEWER.
16. RISERS ON SANITARY SEWERS SHALL BE INSTALLED TO A DEPTH OF 9 FEET WHERE SEWER IS OVER 12 FEET.
17. PRIOR TO THE BACKFILLING OF A SERVICE LEAD, A 4'-0" LENGTH OF?" DIA STEEL BAR SHALL BE PLACED FROM A POINT IMMEDIATELY IN FRONT OF THE SERVICE CONNECTION TO 2-FOOT BELOW THE FINISH GROUND SURFACE. DO NOT REST THE MARKER ON ANY PORTION OF THE SERVICE CONNECTION OR STOPPER.
18. ALL STUBS SHALL HAVE A WATER TIGHT BULKHEAD.
19. INFILTRATION FOR ANY SECTION OF SEWERS BETWEEN MANHOLES SHALL NOT EXCEED 100 GALLONS PER INCH DIAMETER PER MILE OF SEWER PER 24 HOURS AND SHALL INCLUDE THE INFILTRATION FROM ALL MANHOLES AND OTHER APPURTENANCES.
20. ALL SEWERS SHALL BE SUBJECTED TO AIR, INFILTRATION OR EXFILTRATION TESTS, OR A COMBINATION OF SAME, PRIOR TO ACCEPTANCE. ALL SEWERS OVER 24-INCH DIAMETER SHALL BE SUBJECTED TO INFILTRATION TESTS. ALL SEWERS OF 24-INCH DIAMETER OR SMALLER, WHERE THE GROUND WATER LEVEL ABOVE THE TOP OF THE SEWER IS OVER SEVEN FEET, SHALL BE SUBJECTED TO INFILTRATION TESTS. ALL SEWERS OF 24-INCH DIAMETER OR LESS, WHERE THE GROUND WATER LEVEL ABOVE THE TOP OF THE SEWER IS SEVEN FEET OR LESS, SHALL BE SUBJECTED TO AIR TESTS OR EXFILTRATION TESTS.
21. THE PROCEDURE FOR AIR TESTING OF SEWERS SHALL BE IN ACCORDANCE WITH THE NCPI PUBLICATION TITLED "LOW PRESSURE AIR TEST FOR SANITARY SEWERS."
22. NINE POINT MANDREL TEST IS REQUIRED FOR ALL FLEXIBLE PIPES.
23. IF A SEWER FAILS TO PASS ANY OF THE PREVIOUSLY DESCRIBED TESTS, THE CONTRACTOR SHALL DETERMINE THE LOCATION OF THE LEAKS, REPAIR THEM, AND RETEST THE SEWER. THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED. TELEVISION INSPECTION SHALL BE CONSIDERED COMPLETED WHEN THE NECESSARY CONSTRUCTION REPAIRS HAVE BEEN MADE AND THE INSTALLATION RETELEVISED AND THE SYSTEM IS ACCEPTABLE FOR THE TESTING PHASE.
24. ALL SEWER SHALL BE TELEVISED, WITH RESULTS APPROVED BY THE COMMUNITY PRIOR TO PLACING THE SEWER IN SERVICE. COPIES OF THE TELEVISION RECORDING NEED TO GO TO THE COMMUNITY AND THE ENGINEER. THE TELEVISION INSPECTION MUST BE WITNESSED BY THE OWNERS REPRESENTATIVE.
25. THERE SHALL BE NO DISCHARGE OF UNTREATED SANITARY SEWAGE TO THE SURFACE WATERS OF THE STATE DUE TO CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
26. FLOW CHANNELS SHALL BE CONSTRUCTED SUCH THAT FLOW TRAVELS UNRESTRICTED DOWNSTREAM. CHANNELS AND/OR TAPERED SHELVES SHALL BE CONSTRUCTED IN EXISTING MANHOLES AT THE POINT OF CONNECTION TO NEW SEWER.

VAN BUREN NOTES

1. SEWER LEADS SHALL BE C700 ES VITRIFIED CLAY PIPE WITH PREMIUM JOINTS FOR COMMERCIAL/INDUSTRIAL USE AND PVC PIPE, ASTM D3034, SDR 23.5 FOR RESIDENTIAL USE. AN EXTERNAL CLEANOUT SHALL BE INSTALLED ON EACH SANITARY SERVICE LEAD.
2. SANITARY SEWER PIPE SHALL BE:
   - -REINFORCED CONCRETE ASTM C76, CL-IV WITH RUBBER GASKETED JOINTS
   - -VITRIFIED CLAY, ASTM C700 E.S., WITH RUBBER GASKETED JOINTS PER ASTM C425
   - -ABS TRUSS PIPE, ASTM D2680 WITH SOLVENT CEMENT JOINTS
   - -PVC TRUSS PIPE, ASTM D2680, WITH RUBBER GASKETED JOINTS PER ASTM D3212
   - -PVC SOLID WALL PIPE, ASTM D3034, SDR 26 FOR SIZES 8-INCH THROUGH 15-INCH PIPE, OR ASTM F679 FOR SIZES 18-INCH THROUGH 27-INCH WITH RUBBER GASKETED JOINTS

   PLASTIC PIPE SHALL NOT BE USED IN INDUSTRIAL AREAS.
3. CONTRACTOR SHALL NOTIFY WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, ENGINEERING DIVISION, PERMIT OFFICE, 48 HOURS PRIOR TO THE START OF CONSTRUCTION AT (734) 595-6504.
4. A 12 GAUGE LOCATING WIRE SHALL BE INSTALLED ON ALL SERVICE LEADS EXTENDING FROM THE WYE TO WITHIN 5 FEET OF THE BUILDING.

DESIGN	ORIGINAL ISSUE	INITIALS	DATE	DATE	REVISION	BY
		DMN	JUNE 2002	11-14-02	REV. VAN BUREN NOTE No. 3	AR
DRAFTING	ISSUED FOR BID			7-25-03	REV. VAN BUREN NOTES	DB
				09-27-05	REV. PER WAYNE COUNTY COMMENTS	
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED					
APPROVED					FINAL MEASURE	

TOPO: F.B. | PAGE — LEVELS: F.B. | PAGE

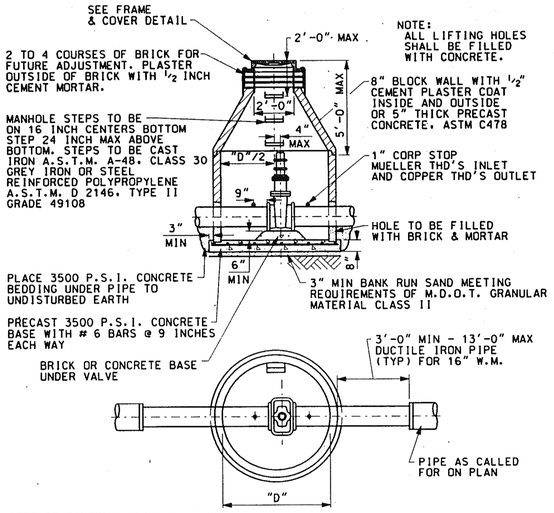
CLIENT
CHARTER TOWNSHIP OF VAN BUREN

Wade-Trim
P.O. Box 10
25251 Northline Road, Taylor, MI 48180
734-947-9700 / 800-482-2864
FAX No. 734-947-9726

TITLE
STANDARD SANITARY SEWER DETAILS

SCALE NONE
SHEET OF
FILE NO. SS1
JOB NO.

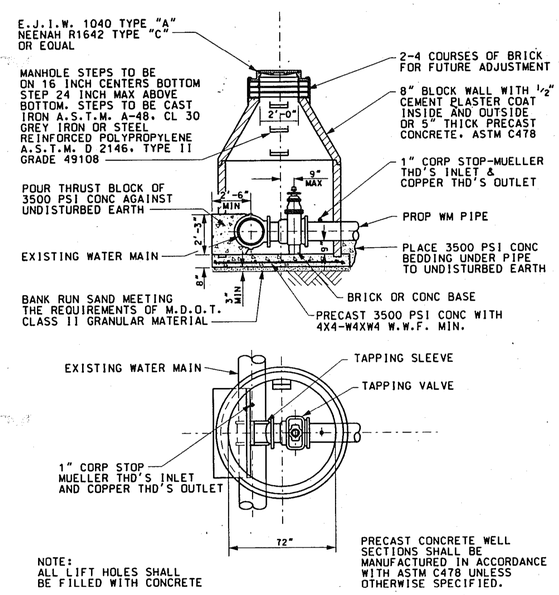
$dgnlev$
$$dgnspec$$



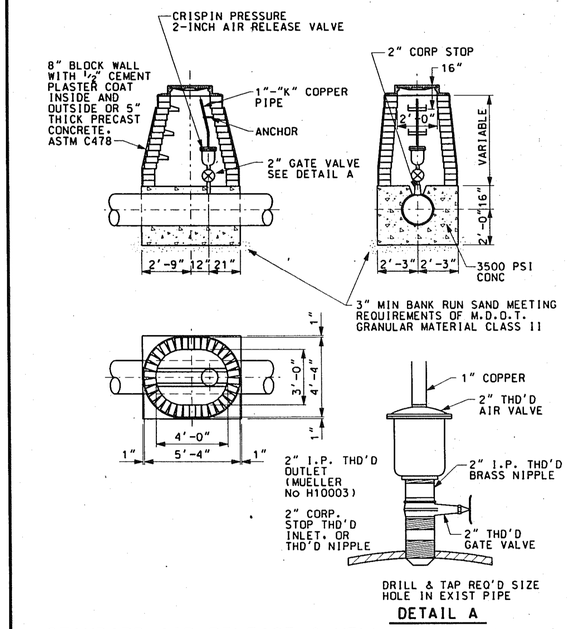
PRECAST CONCRETE WELL SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.T.M. C478 UNLESS OTHERWISE SPECIFIED

"D"= 5'-0" FOR 8" W.M.
"D"= 6'-0" FOR 12" & 16" W.M.

PRECAST GATE WELL



STANDARD PRECAST TAPPING SLEEVE, VALVE & WELL

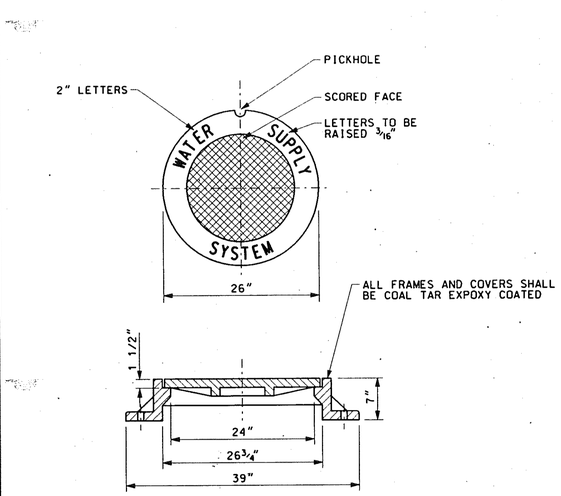


DETAIL A

STANDARD AIR RELEASE & WELL FOR 16" & 20" WATER MAIN

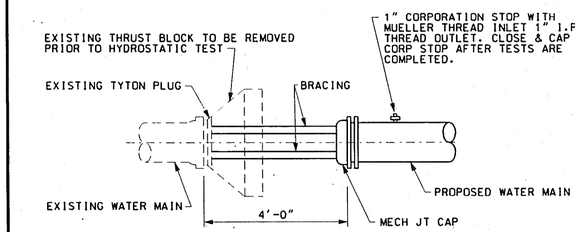
WATER MAIN NOTES

1. ALL WATER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE AGENCY OR AGENCIES HAVING JURISDICTION OF THE WATER SUPPLY SYSTEM AND CONSTRUCTION AREA. ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM WITH THE WAYNE COUNTY GENERAL NOTES (GN-1).
2. WATER MAINS SHALL NOT BE CONSTRUCTED UNDER SIDEWALKS OR ROAD PAVEMENT AREAS.
3. ALL SURFACE STRUCTURES, SUCH AS HYDRANTS, GATE WELLS AND VALVE BOXES SHALL BE SET TO GRADE OR AS INDICATED ON THE PLANS.
4. FIRE HYDRANTS ARE TO BE INSTALLED PLUMB AND HAVE THEIR NOZZLES AS DIRECTED BY THE ENGINEER.
5. HYDRANT LOCATION: HYDRANTS ARE TO BE PLACED AT THE FOLLOWING LOCATIONS UNLESS OTHERWISE NOTED ON THE PLANS:
   - SECTION LINE ROADS - 40 FEET OFF SECTION LINE
   - 1/4 LINE ROADS - 33 FEET OFF 1/4 LINE
   - RESIDENTIAL STREETS - 22 FEET OFF CENTERLINE
6. ALL FITTINGS SHALL BE DUCTILE IRON, PRESSURE RATING 250 P.S.I., CONFORMING TO A.N.S.I. A21.10 (AWWA C110).
7. GATE WELLS AND OTHER WATER MAIN STRUCTURES SHALL NOT BE CONSTRUCTED UNDER DRIVEWAYS, DRIVE APPROACHES, OR SIDEWALKS.
8. PROVIDE 7-FOOT MINIMUM COVER BELOW EXISTING PAVEMENT CENTERLINE OR GROUND AT WATER MAIN LOCATION, WHICHEVER IS LOWEST. WHEN PROPOSED WATER MAIN IS WITHIN 32 FEET OF CENTERLINE ON SECTION LINE ROADS, OR WITHIN 19 FEET OF CENTERLINE ON 1/4 LINE ROADS, SEVEN FEET COVER SHALL ALSO BE REQUIRED AT OTHER LOCATIONS AS NOTED ON THE PLAN. PROVIDE 6-FOOT MINIMUM COVER BELOW EXISTING ROAD CENTERLINE OR GROUND AT WATER MAIN LOCATION, WHICHEVER IS LOWEST, AT ALL OTHER LOCATIONS UNLESS OTHERWISE NOTED.
9. PLACE SAND BACKFILL WITHIN THREE FEET OF ALL STRUCTURES, INCLUDING VALVE WELLS, FIRE HYDRANTS, ETC.
10. ALL WATER MAIN PIPE SHALL HAVE CLASS III BEDDING UNLESS OTHERWISE NOTED ON THE PLANS. SEE SHEET MD-1.
11. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.

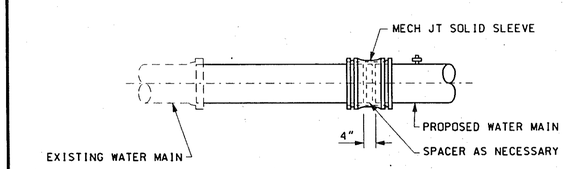


STANDARD FRAME AND COVER

E.J.I.W. #1040, TYPE "A"
NEENAH #R1642, TYPE "C"
OR EQUAL



TEMPORARY ARRANGEMENT FOR HYDROSTATIC TEST



NOTE:
ALL JOINTS NOT SUBJECTED TO HYDROSTATIC TEST SHALL BE OBSERVED UNDER LINE PRESSURE TO ASSURE WATER TIGHTNESS.

COMPLETED CONNECTION TO EXISTING WATER MAIN

VAN BUREN NOTES

1. WATER MAIN PIPE THREE INCHES IN DIAMETER AND LARGER SHALL BE DUCTILE IRON CLASS 54.
2. DOMESTIC SERVICE TWO INCHES IN DIAMETER OR SMALLER SHALL BE TYPE "K" COPPER PIPE.
3. ALL NECESSARY FITTINGS FOR THE INSTALLATION OF THE WATER MAIN ARE TO MEET THE CITY OF DETROIT WATER AND SEWERAGE DEPARTMENT STANDARDS.
4. ALL FITTINGS AND BOLTS ARE TO BE MASTIC COATED.
5. ALL WATER MAINS ARE TO BE KEPT IN SERVICE DURING CONSTRUCTION OPERATIONS UNLESS ARRANGEMENTS WITH THE WATER DEPARTMENT ARE MADE. THE VAN BUREN TOWNSHIP WATER DEPARTMENT WILL BE THE ONLY AUTHORIZED PERSONNEL TO OPERATE THE VALVES ON THE MAIN LINE.
6. FIRE HYDRANTS SHALL BE EAST JORDAN IRON WORKS 6 BR, CONFORMING TO A.W.W.A. C502 IMPROVED HYDRANT SPECIFICATIONS. HYDRANTS SHALL BE DESIGNED TO OPEN IN A COUNTER-CLOCKWISE DIRECTION WITH AN OPENING ARROW CAST INTO THE BONNET AND SHALL HAVE SEAT VALVE AND DOUBLE OPERATING STEM O-RING SEALS. 6-INCH DIA VALVE OPENING. 6-INCH DIA MECHANICAL JOINT HUB AND TWO 4-INCH DIA PUMPER NOZZLES. HYDRANTS SHALL BE EQUIPPED WITH CITY OF DETROIT FIRE DEPARTMENT STANDARD NOZZLE THREADS AND OPERATING NUT AND SHALL BE ORDERED FOR 6.5 FOOT BURY. HYDRANTS SHALL BE PAINTED RED.
7. CONTRACTOR SHALL BAG ALL NEW FIRE HYDRANTS UNTIL THE WATER MAIN IS ACCEPTED FOR SERVICE.
8. WHEN THE FIRE HYDRANT IS BEING INSTALLED, THE 6-INCH DIAMETER FIRE HYDRANT VALVE SHALL BE INSTALLED IN THE FULL OPEN POSITION.
9. WATER MAIN TO BE PLACED LEVEL THROUGH ALL GATE WELLS ON 16-INCH WATER MAINS.
10. GATE VALVES, FOR SIZES 4-INCH THROUGH 16-INCH DIA SHALL BE EAST JORDAN IRON WORKS FLOW MASTER, MUELLER 2360 SERIES, OR U.S. PIPE METROSEAL, RESILIENT WEDGE TYPE, CONFORMING TO A.W.W.A. C509 OR C515 SPECIFICATION. VALVES SHALL BE DESIGNED FOR A WORKING PRESSURE OF 200 P.S.I. AND A TEST PRESSURE OF 400 P.S.I. AND TO OPEN IN A CLOCKWISE DIRECTION AND SHALL HAVE A 2-INCH SQUARE OPERATIONS NUT AND DOUBLE OPERATING STEM O-RINGS. VALVES SHALL BE ORDERED WITH INLET AND OUTLET CONNECTIONS COMPATIBLE TO THE WATER PIPE JOINTS USED ON THE SYSTEM.
11. WHEN JACKING OR BORING ALL VOIDS SHALL BE FILLED BY MEANS OF PRESSURE GROUTING WITH 1:3 CEMENT-SAND MORTAR. THIS WORK MUST BE ACCOMPLISHED WITHIN 24 HOURS AFTER THE WATER MAIN CROSSING HAS BEEN COMPLETED. WATER MAIN JACKING OR BORING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE THE EDGES OF THE PAVEMENT.
12. ALL CONNECTIONS TO EXISTING MAINS SHALL BE MADE USING A TAPPING SLEEVE, VALVE, & WELL. CONNECTIONS OF LIKE SIZE PIPE SHALL BE CONSTRUCTED WITH A STANDARD TEE.
13. A 10-FOOT MINIMUM SEPARATION BETWEEN HYDRANTS AND DRIVES IS REQUIRED.
14. ALL NUTS AND BOLTS FOR UNDERGROUND MECHANICAL CONNECTIONS SHALL BE MASTIC COATED.
15. WATER MAIN IN AREAS WHERE POTENTIALLY CORROSIVE AGENTS MAY EXIST SHALL BE ENCLOSED IN PROTECTIVE WRAP.
16. WHERE HYDRANTS ARE TO BE LOCATED ACROSS DRAINAGE DITCHES A 20 FOOT CULVERT AND 10 FOOT ACCESS DRIVE SHALL BE PROVIDED.

VIEW MTRI PLOTS:

On-1-63
FILENAME: P:\VBN2011\03T\CADD-DATA\STANDARD DETAILS\VBNDET3.DGN: 11/4/02, 14:21:32

DESIGN	ORIGINAL ISSUE	INITIALS DMN	DATE JUNE 2002
DRAFTING	ISSUED FOR BID		
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED		
APPROVED			

DATE	REVISION	BY
	FINAL MEASURE	

TOPO		LEVELS	
F.B.	PAGE	F.B.	PAGE

CLIENT
CHARTER TOWNSHIP OF VAN BUREN

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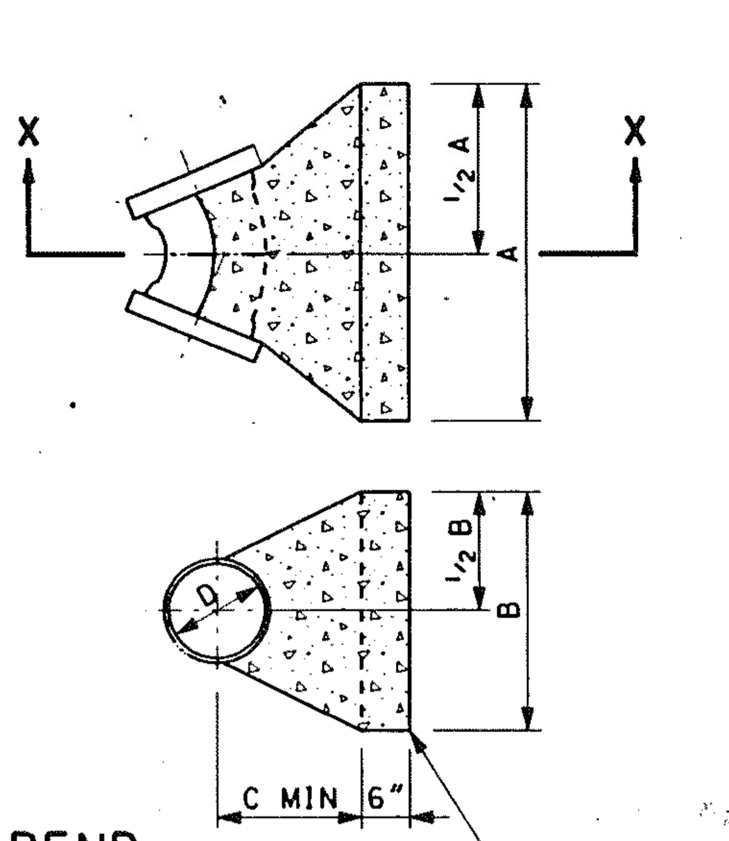
FAX No. 734-947-9726

TITLE
STANDARD WATER MAIN DETAILS

SCALE NONE
SHEET OF
FILE NO. WM1
JOB NO.

DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	2'-0"	1'-6"	1'-0"
8"	2'-0"	2'-0"	1'-3"
10" & 12"	3'-6"	2'-6"	1'-6"
14" & 16"	5'-6"	3'-0"	1'-9"
18" & 20"	6'-6"	4'-0"	1'-9"
24"	7'-0"	5'-0"	2'-0"

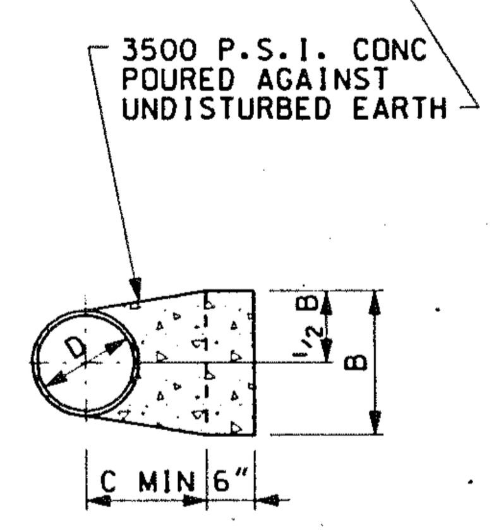
NOTE:
WHEN "A" DIMENSION IS 6'-0" OR GREATER, USE #4 BARS AT 12" CENTERS EACH WAY.



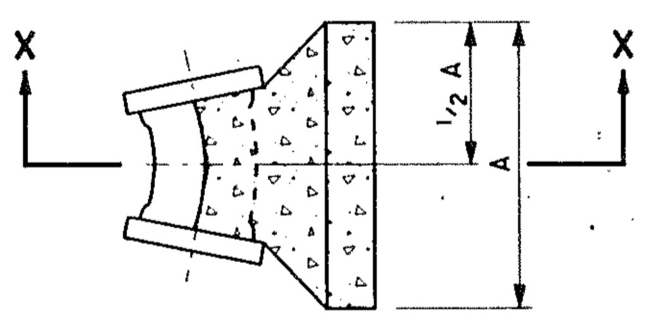
THRUST BLOCK AT 45° BEND

SEC X-X

DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	1'-6"	1'-0"	1'-0"
8"	1'-9"	1'-3"	1'-0"
10" & 12"	3'-0"	1'-6"	1'-3"
14" & 16"	4'-0"	2'-0"	1'-6"
18" & 20"	4'-0"	3'-0"	1'-9"
24"	4'-0"	4'-6"	2'-0"

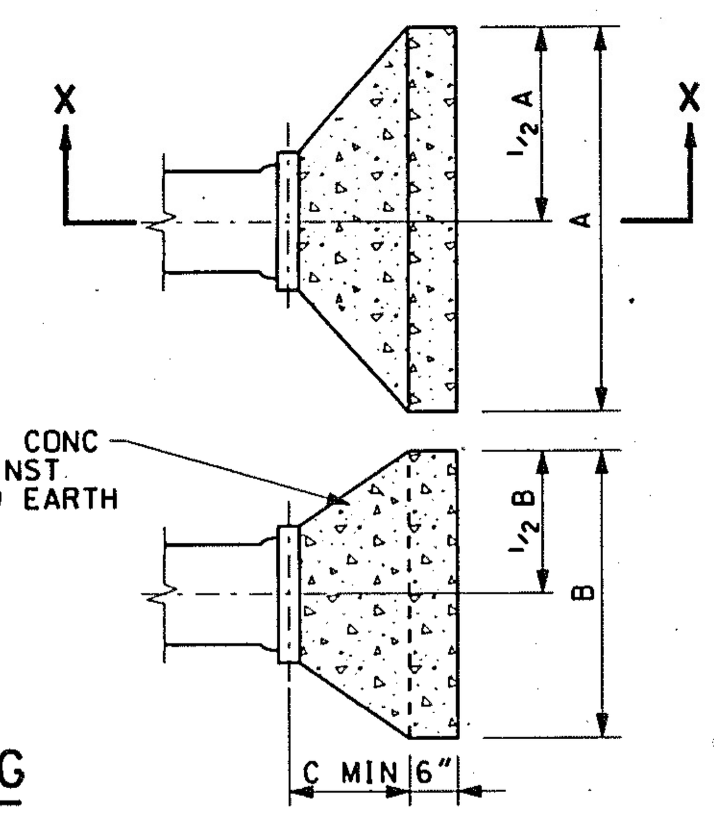


SEC X-X



THRUST BLOCK AT 22 1/2° BEND

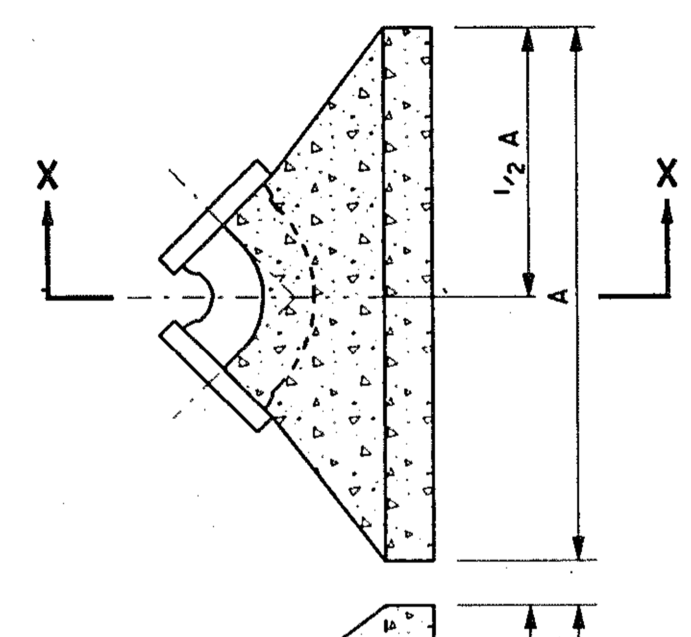
DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	2'-0"	1'-6"	9"
8"	2'-6"	2'-0"	1'-0"
10" & 12"	4'-0"	3'-0"	1'-3"
14" & 16"	5'-0"	4'-0"	1'-6"
18" & 20"	8'-0"	4'-0"	1'-9"
24"	9'-0"	5'-0"	2'-0"



NOTE:
WHEN "A" DIMENSION IS 6'-0" OR GREATER, USE #4 BARS AT 12" CENTERS EACH WAY.

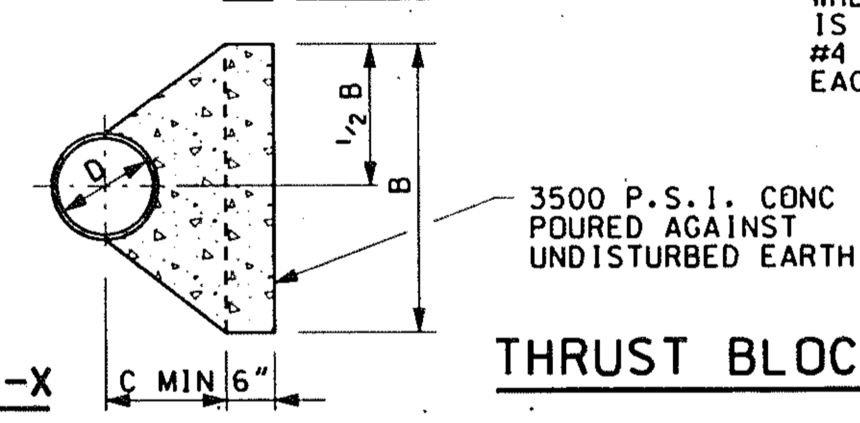
THRUST BLOCK AT PLUG

SEC X-X



DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	2'-9"	1'-6"	9"
8"	3'-0"	2'-6"	1'-0"
10" & 12"	5'-6"	3'-0"	1'-3"
14" & 16"	6'-0"	5'-0"	1'-6"
18" & 20"	9'-0"	5'-0"	1'-9"
24"	11'-0"	6'-0"	2'-0"

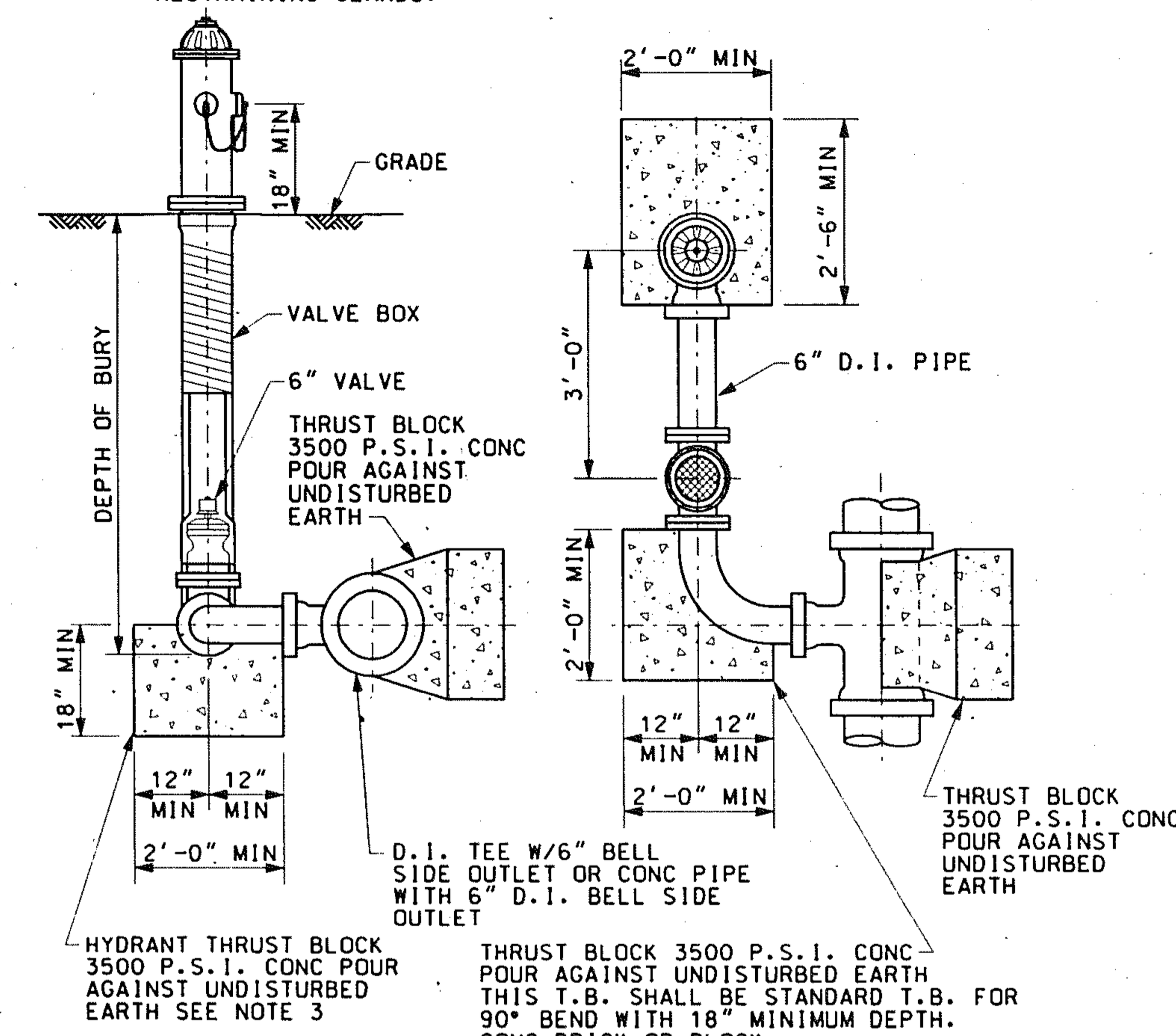
NOTE:
WHEN "A" DIMENSION IS 6'-0" OR GREATER, USE #4 BARS AT 12" CENTERS EACH WAY.



SEC X-X

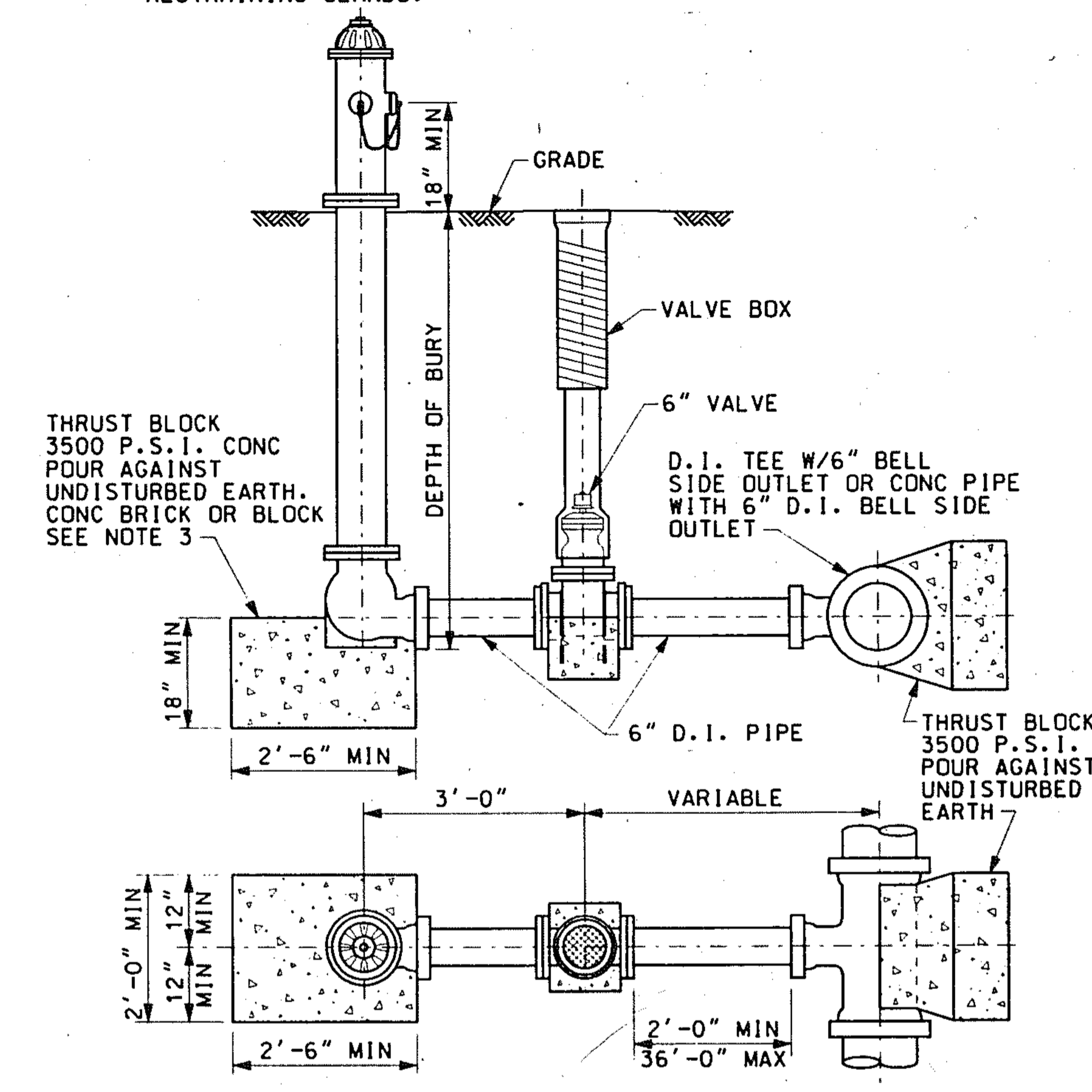
THRUST BLOCK AT 90° BEND

NOTES:
1. INSTALL ADDITIONAL FITTINGS & SPIGOT PIPE AS NECESSARY BETWEEN WATER MAIN & VALVE BOX TO ADJUST FOR PROPER LOCATION AND GRADE OF HYDRANT.
2. VERTICAL ANCHORAGES WILL BE REQUIRED ON ALL VERTICAL HYDRANT BENDS IN EXCESS OF 11 1/4°.
3. WHERE HYDRANTS ARE INSTALLED ON EXISTING MAINS THAT ARE TO BE PLACED BACK INTO SERVICE IMMEDIATELY, PLACE CONCRETE BRICK OR BLOCK TO UNDISTURBED EARTH AND ENCASE WITH CONCRETE OR USE RESTRAINING GLANDS.



STANDARD FIRE HYDRANT ASSEMBLY CLOSE COUPLE TYPE

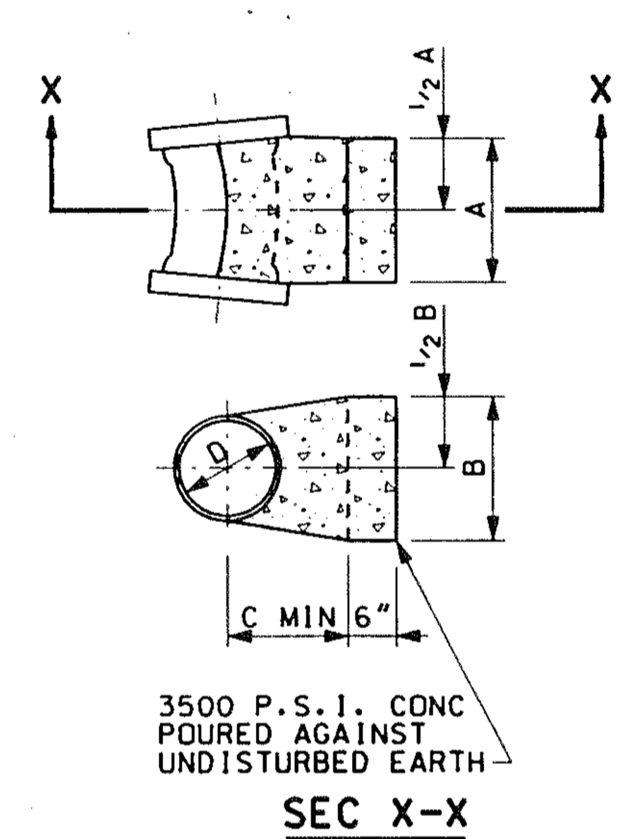
NOTES:
1. INSTALL ADDITIONAL FITTINGS, BENDS & SPIGOT PIPE AS NECESSARY BETWEEN WATER MAIN & VALVE BOX TO ADJUST FOR PROPER LOCATION AND GRADE OF HYDRANT.
2. VERTICAL ANCHORAGES WILL BE REQUIRED ON ALL VERTICAL HYDRANT BENDS IN EXCESS OF 11 1/4°.
3. WHERE HYDRANTS ARE INSTALLED ON EXISTING MAINS THAT ARE TO BE PLACED BACK INTO SERVICE IMMEDIATELY, PLACE CONCRETE BRICK OR BLOCK TO UNDISTURBED EARTH AND ENCASE WITH CONCRETE OR USE RESTRAINING GLANDS.



STANDARD FIRE HYDRANT ASSEMBLY "T" TYPE

DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	1'-0"	1'-0"	1'-0"
8"	1'-3"	1'-3"	1'-0"
10" & 12"	1'-6"	1'-6"	1'-3"
14" & 16"	2'-0"	2'-0"	1'-6"
18" & 20"	3'-1"	2'-0"	1'-9"
24"	3'-0"	3'-0"	2'-0"

NOTE:
THESE TABLES ARE BASED ON SOIL BEARING OF 1500 P.S.F. IN MUCK, PEET OR OTHER UNSUITABLE SOILS HAVING A SOIL BEARING LESS THAN 1500 P.S.F., THE CONTRACTOR SHALL PROVIDE SUITABLE ADDITIONAL BLOCKING, ENCASEMENTS OR RESTRAINTS. BLOCKING IN BORE PIT EXCAVATIONS SHALL BE AGAINST UNDISTURBED SOIL OR SHALL BE PROVIDED WITH RESTRAINTS AS REQUIRED.

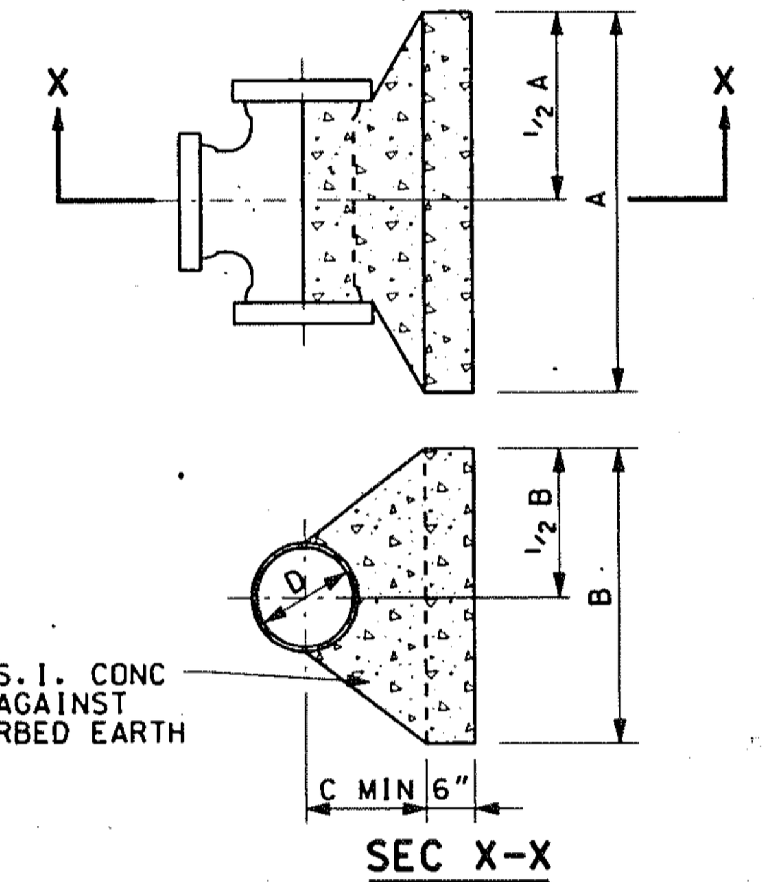


SEC X-X

THRUST BLOCK AT 11 1/4° BEND

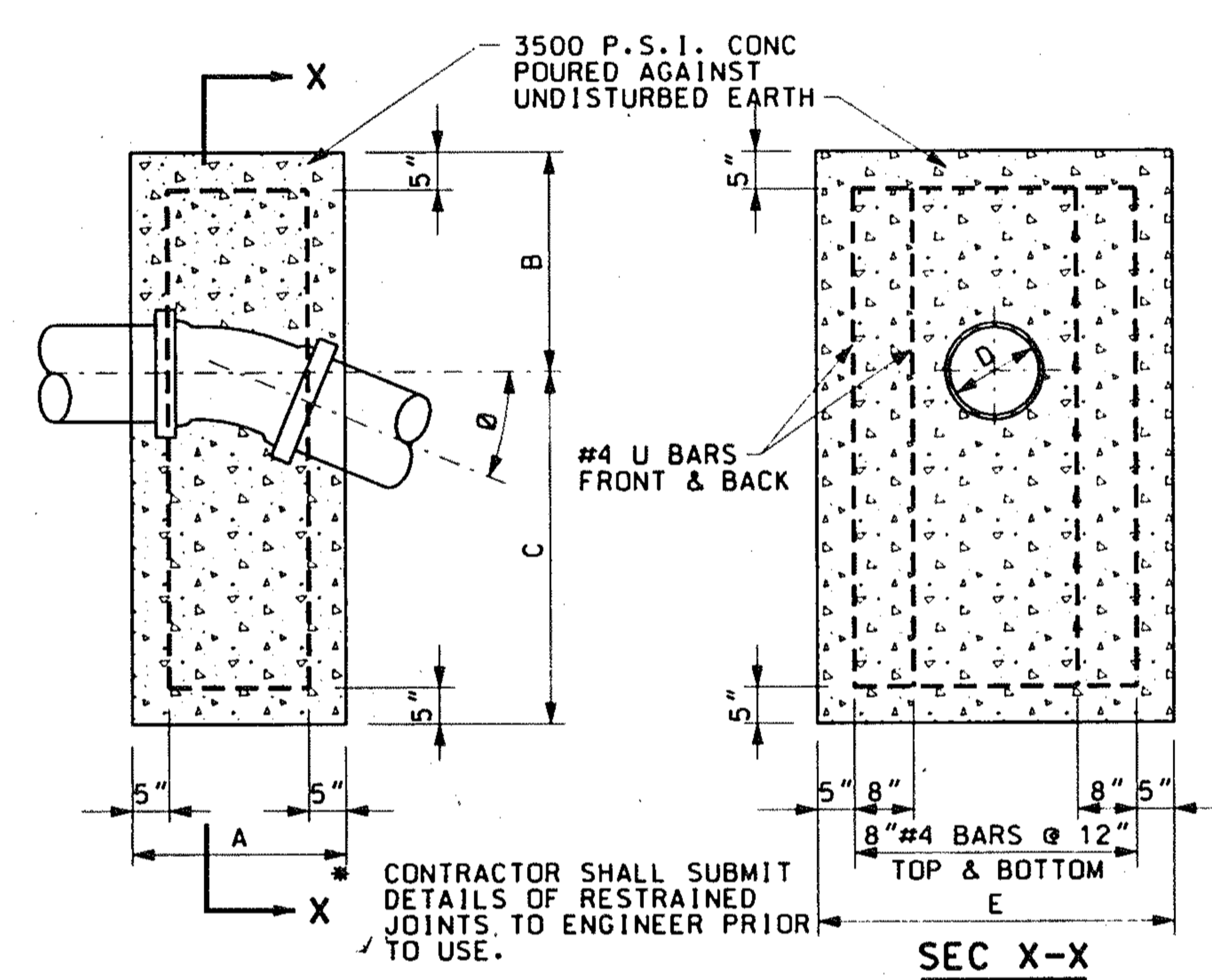
DIA OF WATER MAIN	THRUST BLOCK		
D	A	B	C
6"	2'-0"	1'-6"	9"
8"	2'-6"	2'-0"	1'-0"
10" & 12"	4'-0"	3'-0"	1'-3"
14" & 16"	5'-0"	4'-0"	1'-6"
18" & 20"	8'-0"	4'-0"	1'-9"
24"	9'-0"	5'-0"	2'-0"

NOTE:
WHEN "A" DIMENSION IS 6'-0" OR GREATER, USE #4 BARS AT 12" CENTERS EACH WAY.



THRUST BLOCK AT TEE

SEC X-X

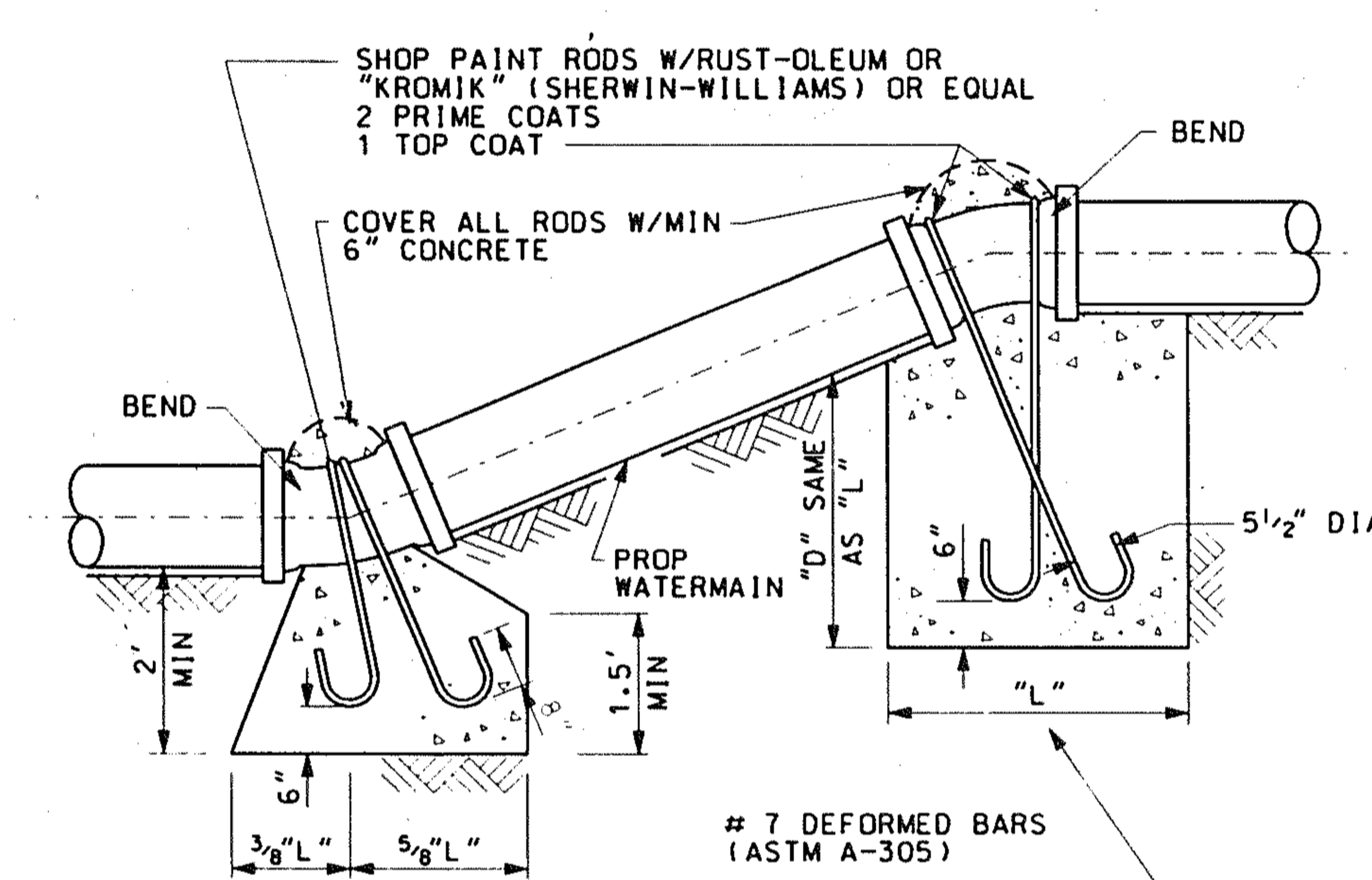


* CONTRACTOR SHALL SUBMIT DETAILS OF RESTRAINED JOINTS TO ENGINEER PRIOR TO USE.

SEC X-X

D	Ø	A	B	C	E
6"	22 1/2°	1'-6"	1'-6"	1'-9"	3'-0"
	45°	1'-8"	1'-6"	2'-6"	4'-0"
8"	22 1/2°	2'-0"	1'-6"	2'-6"	4'-0"
	45°	2'-0"	2'-6"	3'-0"	4'-0"
10"	22 1/2°	2'-0"	2'-6"	3'-0"	4'-0"
	45°	2'-3"	2'-6"	4'-0"	5'-0"
12"	22 1/2°	2'-0"	2'-6"	4'-0"	4'-0"
	45°	2'-4"	3'-0"	4'-6"	5'-0"
16"	22 1/2°	2'-2"	3'-0"	4'-6"	5'-0"
	45°	*	*	*	*

ANCHORAGE DETAILS FOR VERTICAL BENDS

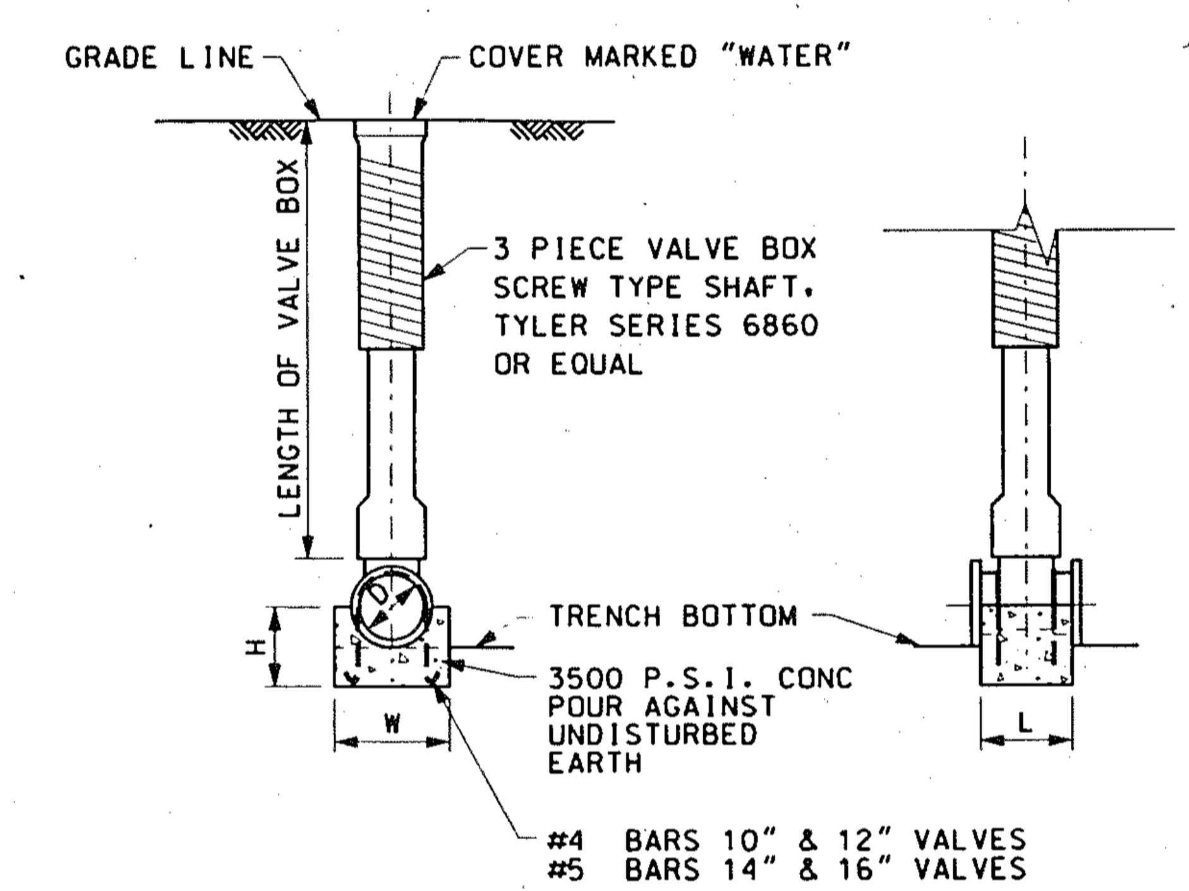


BLOCK WIDTH TO BE 1.5' OUTSIDE EDGES OF DISTURBED EARTH (TUNNEL INTO TRENCH SIDES) MIN 6.0' WIDE

6" & 8" - "L" = 2.5'
10" - "L" = 3.0'
12" - "L" = 3.0'
14" - "L" = 4.5'
16" - "L" = 5.5'
18" - "L" = 5.5'
20" - "L" = 6.5'
24" - "L" = 7.5'

NOTE:
4' MIN COVER ON ALL DITCH CROSSINGS. BENDS IF REQUIRED TO BE PLACED PER VERTICAL CONCRETE TO BE 3500 P.S.I.

VERTICAL REACTION BLOCKING



SIZE OF PIPE	H
6"	6"
8"	8"
10"	10"
12"	12"

W= WIDTH OF TRENCH
L= LENGTH OF VALVE

VALVE BLOCK AND BOX DETAIL

DESIGN	ORIGINAL ISSUE	INITIALS	DATE	DATE	REVISION	BY	TOPO F.B.	TOPO PAGE	LEVELS F.B.	LEVELS PAGE
		DMN	JUNE 2002							
DRAFTING	ISSUED FOR BID									
CHECKED	NOT VALID FOR CONST. UNLESS SIGNED AND DATED									
APPROVED					FINAL MEASURE					

CLIENT
CHARTER TOWNSHIP OF VAN BUREN

Wade-Trim
P.O. Box 10
25251 Northline Road, Taylor, MI 48180
734-947-9700 / 800-482-2864
FAX No. 734-947-9726

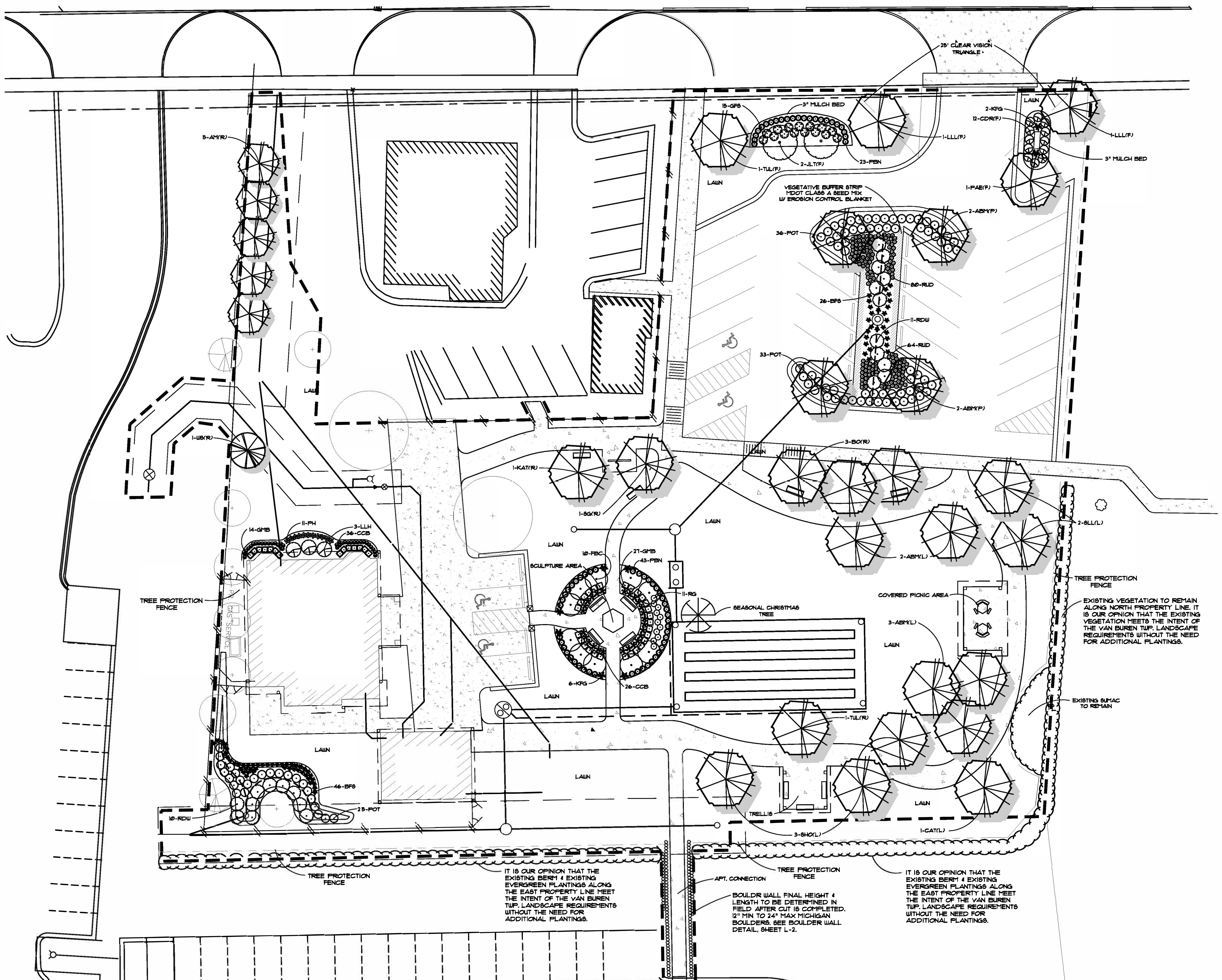
TITLE
STANDARD WATER MAIN DETAILS

SCALE NONE
SHEET OF
FILE NO. WM2
JOB NO.

*NOTE: FOR A-A LOOK AT BIORETENTION CROSS-SECTION DETAIL (SHEET L-2)

KEY

- BENCH
- PICNIC TABLE
- ADA ACCESSIBLE PICNIC TABLE



REQUIREMENT SUMMARY

TOTAL FRONTAGE (BELLEVILLE ROAD)	132 LF.
TREES REQUIRED	4
(1 TREE PER 40 LF)	
TREES PROVIDED	4
(F) FRONTAGE TREES	
ORNAMENTAL TREES REQUIRED	2
(1 TREE PER 100 LF)	
ORNAMENTAL TREES PROVIDED	2
(F) FRONTAGE TREES	
SHRUBS REQUIRED.	27
(8 TREE PER 40 LF)	
SHRUBS PROVIDED	27
OPEN SPACE LANDSCAPING	32,127 SF.
TREES REQUIRED	11
(1 TREE PER 3,000 SF)	
TREES PROVIDED	11
(L) LANDSCAPE TREES	
TOTAL PARKING LOT INTERIOR	11,195 SF.
5% OF PARKING LOT (LANDSCAPE REQUIRED)	560 SF.
LANDSCAPE AREA PROVIDED	2,009 SF.
TREES REQUIRED	7
(1 TREE PER 300 SF.)	
TREES PROVIDED	7
(P) PARKING LOT TREES	
EXISTING TREES TO BE REPLACED	13
TREES PROVIDED	13
(R) REPLACED TREES	
FOUNDATION LANDSCAPE	46 LF.
ORNAMENTAL TREES REQUIRED	1
(1 PER 100 LF.)	
ORNAMENTAL TREES PROVIDED	1*
EVERGREEN/DECIDUOUS TREES REQUIRED	2
(1 PER 40 LF.)	
EVERGREEN/DECIDUOUS TREES PROVIDED	2*
SHRUBS REQUIRED	5
(10 PER 100 LF)	
SHRUBS PROVIDED	17
PERENNIAL BEDS REQUIRED	64 SF.
(320 SF X 20%)	
PERENNIAL BEDS PROVIDED	127 SF.

*-EXISTING

LANDSCAPE PLAN

Conroy — N

0' 10' 20' 40'
SCALE: 1"=20'

STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT
NO. 862
REGISTERED LANDSCAPE ARCHITECT

WA
WAKELY ASSOCIATES, INC.
ARCHITECTS

30500 VAN DYKE AVENUE
SUITE 209
WARREN, MICHIGAN 48093
PH: 586.573.4100
FX: 586.573.0822
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W: www.conroyla.com
Landscape Architecture & Construction · Construction Management
Site Planning · Golf Course Architecture

CONROY JOB NO.: 17.117

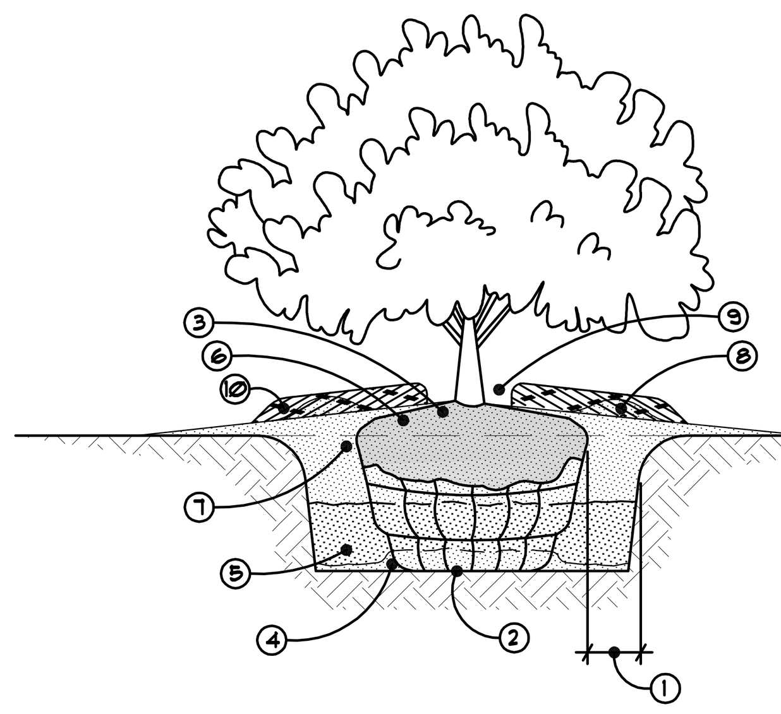
VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD., VAN BUREN CHARTER TOWNSHIP, MI 48111

LANDSCAPE PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐
DRAWN BY:	MVJ
CHECKED BY:	PSC

REVISIONS:
~~CONSTRUCTION SET 03/21/18~~
~~CONSTRUCTION SET 05/21/18~~
~~WAYNE CO. REV. 08/24/18~~
CONSTRUCTION SET 09/25/18

DATE: 05/10/17
SHEET NO.: L-1
JOB NO.: 161675

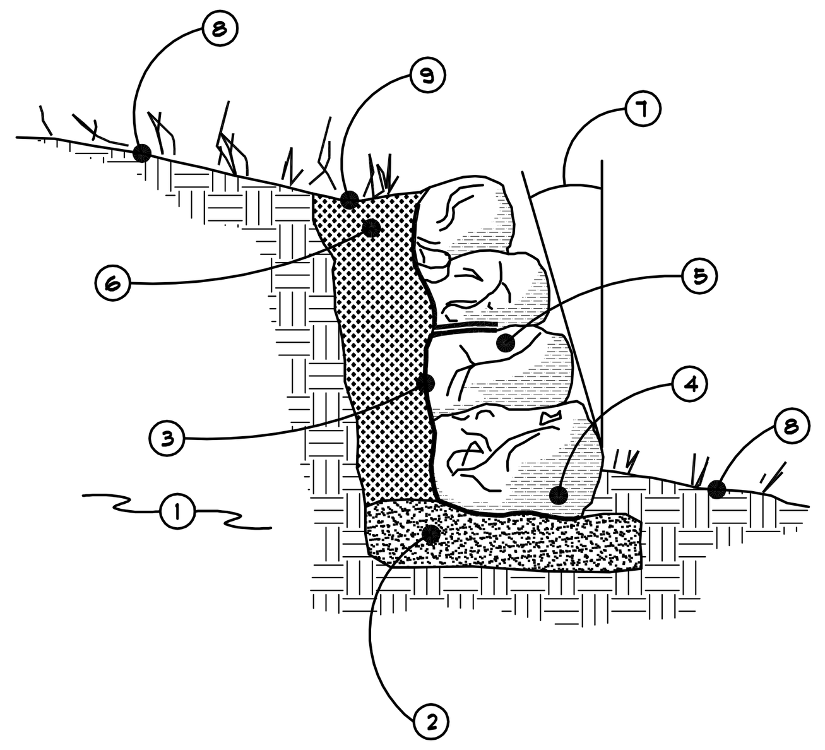


INSTALLATION NOTES:

1. DIG PLANT POCKET 6" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR AND REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN SHRUB. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE EXCESS BURLAP. IF APPLICABLE, REMOVE TOP WIRE LOOPS, OR BEND LOOPS DOWN UNTIL THEY TOUCH SIDE OF BALL.
7. BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
8. IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
9. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 1-2" RING EXPOSED AT BASE OF TRUNK.
10. IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT AND SHOULD NOT EXTEND BEYOND PLANT POCKET.

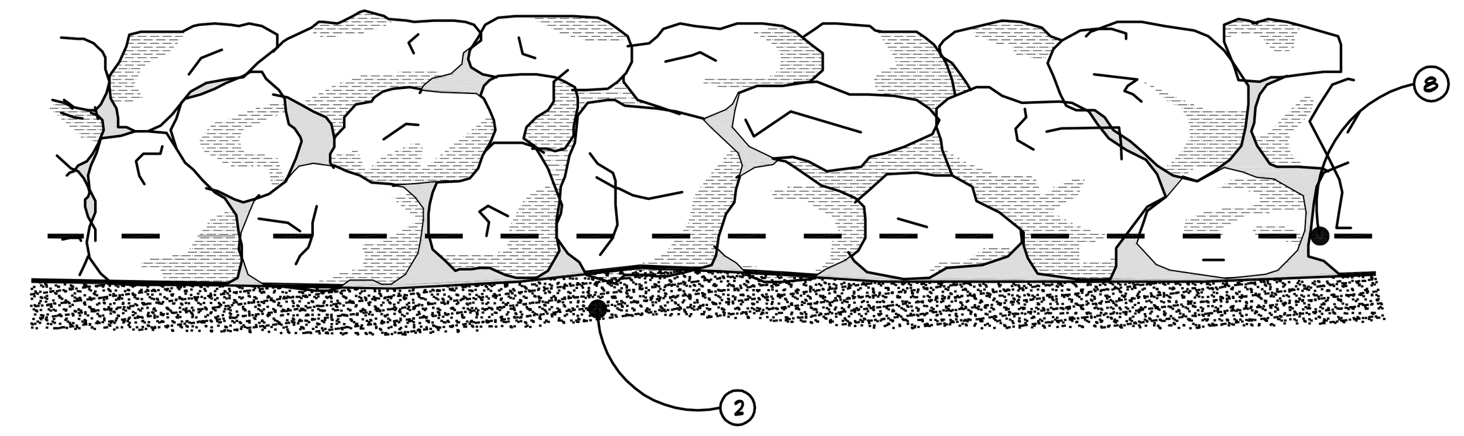
BALLED & BURLAPED SHRUB PLANTING DETAIL

NOT TO SCALE



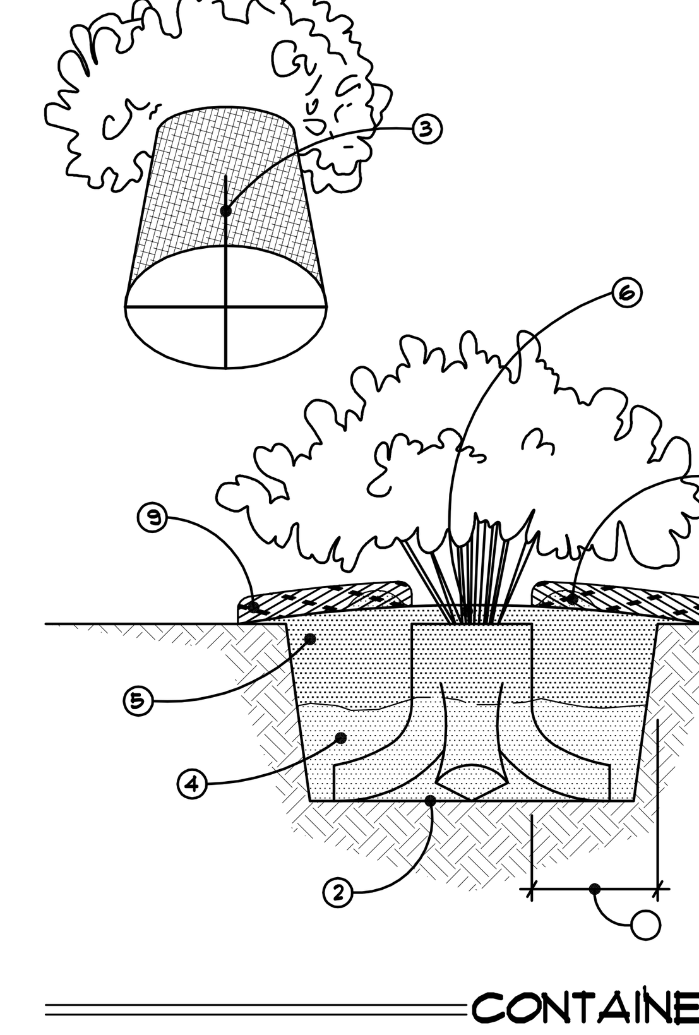
INSTALLATION NOTES:

1. UNDISTURBED EARTH
2. 6" MINIMUM, COMPACTED SUBGRADE
3. FILTER CLOTH, PLACE IN 'C' SHAPE, MAXIMUM 2 BOULDERS HIGH.
4. BURY BOTTOM BOULDER 1/3 TO 1/2 OF BOULDER HEIGHT. (MIN - 6" DEPTH)
5. BOULDERS, SEE PLAN FOR SIZE AND HEIGHT. BOULDERS ARE TO BE PLACED IN SUCH A MANNER AS TO HAVE A RANDOM LOOK. CONTRACTOR TO MIX SIZES OF BOULDERS TO AVOID APPEARANCE OF A PATTERN.
6. COMPACTED POROUS BACKFILL
7. BATTER ±7%
8. APPROXIMATE FINISH GRADE
9. SWALE BEHIND WALL WHEN POSSIBLE



BOULDER WALL DETAIL

NOT TO SCALE



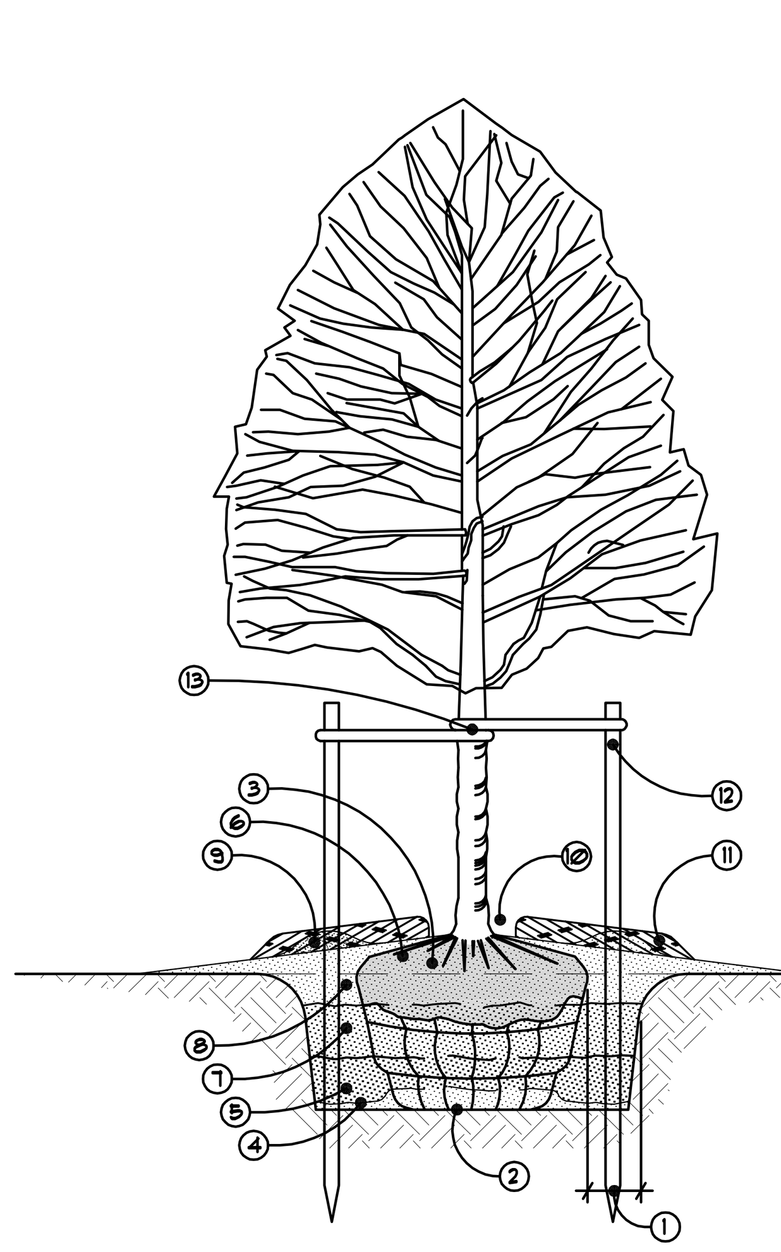
INSTALLATION NOTES:

1. DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE PLANT FROM CONTAINER AND EXAMINE ROOTMASS. IF ROOTMASS IS LOOSE, INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. IF A ROOTBOUND CONDITIONS EXISTS, DISRUPT THE ROOTMASS BY CUTTING THROUGH BOTTOM HALF OF ROOTMASS. ROTATE ROOTMASS 90° AND CUT AGAIN, FORMING FOUR (4) LOBES. SPREAD THE FOUR LOBES DISRUPTING ROOTMASS AND INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. PLACE PLANT IN POCKET SLIGHTLY ABOVE GRADE.
4. BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL, ASSURING SHRUB IS STRAIGHT.
5. BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
6. SPREAD 1" OF PLANTING MIX OVER TOP OF CONTAINER ROOTBALL. SLOPE GRADE AWAY FROM SHRUB.
7. IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
8. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 1-2" RING EXPOSED AT BASE OF PLANT.
9. IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT AND SHOULD NOT EXTEND BEYOND PLANT POCKET.

CONTAINER SHRUB PLANTING DETAIL

POT BOUND SHRUBS

NOT TO SCALE



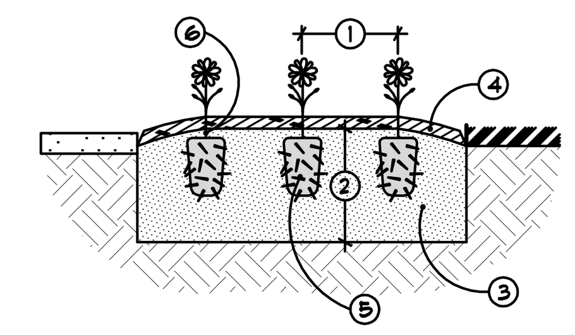
INSTALLATION NOTES:

1. DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR & REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF THE ROOT SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN TREE. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/3 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE TOP WIRE LOOPS, OR BEND DOWN UNTIL THEY TOUCH SIDE OF BALL. REMOVE EXCESS BURLAP.
7. BACKFILL PLANT POCKET SECOND 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
8. BACKFILL PLANT POCKET LAST 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT. SLOPE GRADE AWAY FROM TREE.
9. IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
10. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 2-3" RING EXPOSED AT BASE OF TRUNK.
11. MULCH RINGS TO BE CONSISTENT WITH PLANT TYPE/SIZE THROUGHOUT PROJECT & SHOULD NOT EXTEND BEYOND PLANT POCKET.
12. MINIMUM 2"x2"x60" HARDWOOD STAKES TO EXTEND INTO UNDISTURBED SOIL UNDER PLANT POCKET. STAKE LOCATIONS PER TREE TO BE CONSISTENT THROUGHOUT PROJECT.
13. 1" WIDE BELT LIKE NYLON, PLASTIC, OR OTHER ACCEPTABLE MATERIAL, NO WIRE OR HOSE TO BE USE TO GUY TREES. TWO (2) GUYS PER TREE.

DECIDUOUS TREE PLANTING DETAIL

TREE 3" CAL. & UNDER

NOT TO SCALE

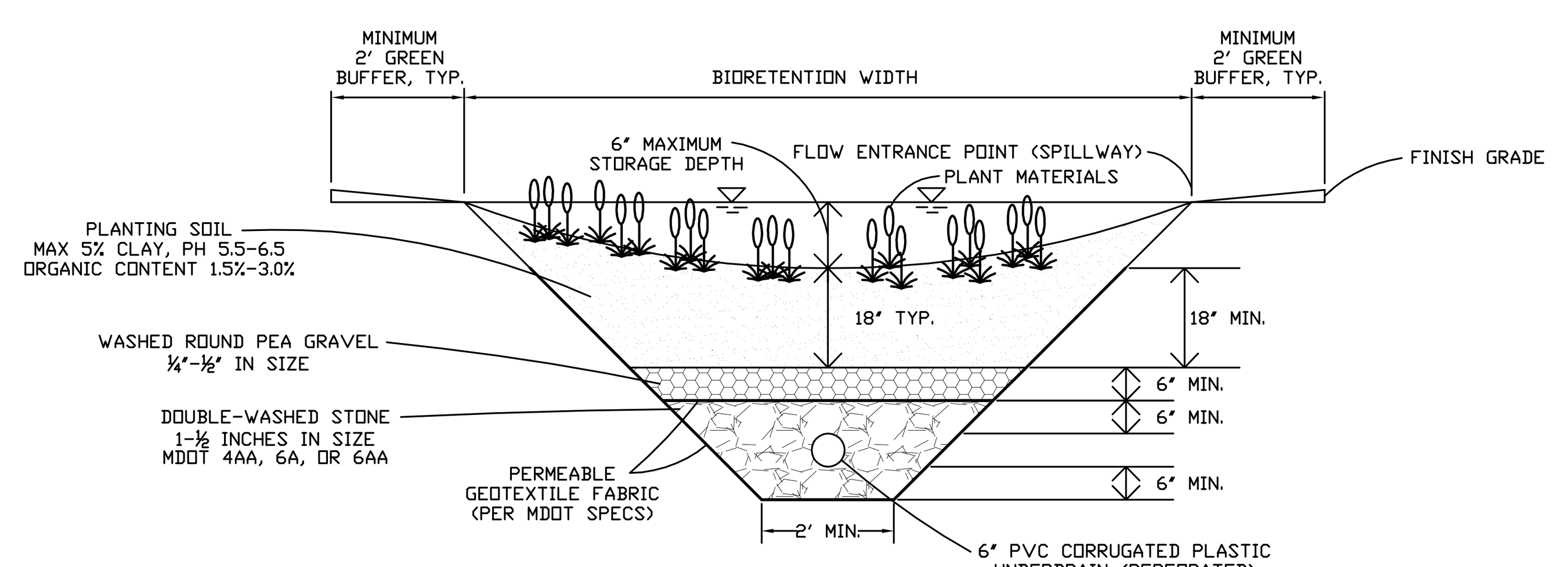


INSTALLATION NOTES:

1. SEE DRAWING FOR PLANT SPACING.
2. EXCAVATE BED TO A MINIMUM 6" DEPTH. BACKFILL WITH PREPARED PLANTING MIX.
3. PLANTING MIX TO CONSIST OF 50% TOPSOIL & 50% LEAF COMPOST.
4. SHREDDED BARK MULCH, 1" DEPTH. MULCH TO BE NATURAL IN COLOR.
5. REMOVE ALL CONTAINERS. IF ROOTBOUND, DISRUPT ROOT PLUG TO LOOSEN ROOT MASS.
6. PLANT THE ANNUAL OR GROUND COVER PLANT THROUGH THE MULCH INTO THE PLANTING MIX ASSURING THAT PLANTING MIX COVERS ENTIRE ROOT MASS OF PLANT.

ANNUAL & GROUND COVER PLANTING DETAIL

NOT TO SCALE



TYPICAL WAYE COUNTY BIORETENTION CROSS-SECTION

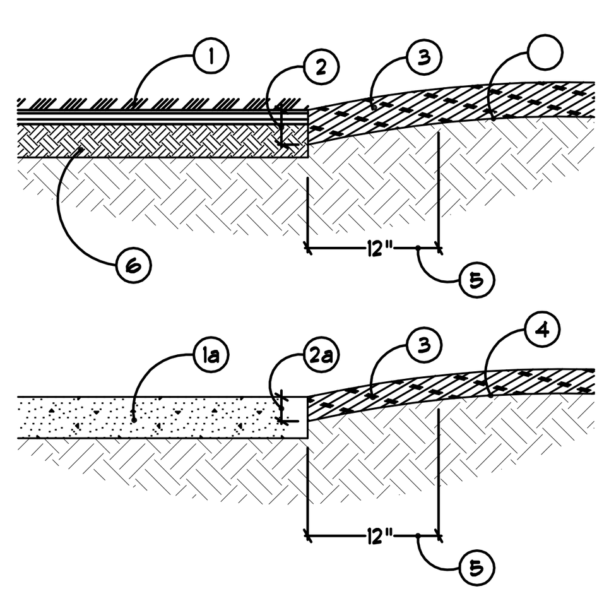
NOT TO SCALE

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
AM	5	ACER X FREEMANII 'ARMSTRONG'	ARMSTRONG MAPLE	3"	B & B
ABM	9	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	3"	B & B
BO	4	QUERCUS MACROCARPA	BUR OAK	3"	B & B
CAT	1	CATALPA BIGNONIOIDES	CATALPA TREE	3"	B & B
FBC	10	MALUS SARGENTI 'FIREBIRD'	FIREBIRD CRABAPPLE	3"	B & B
JLT	2	SYRINGA RETICULATA 'IVORY SILK'	JAPANESE TREE LILAC	3"	B & B
KAT	1	CERCIDIPHYLLUM	KATSURA TREE	3"	B & B
LLL	2	TILIA CORDATA	LITTLE-LEAF LINDEN	3"	B & B
PAE	1	ULMUS 'PATRIOT'	PATRIOT ELM	3"	B & B
SHO	3	QUERCUS SHUMARDII	SHUMARD OAK	3"	B & B
SLL	2	GLEDITSIA TRIACANTHOS F. INTERMIS 'SKYLINE'	SKYLINE LOCUST	3"	B & B
SG	1	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	3"	B & B
TUL	2	LIRIODENDRON	TULIP TREE	3"	B & B
WS	1	PICEA GLAUCA	WHITE SPRUCE	6'	B & B
GMB	41	BUXUS 'GREEN MOUNTAIN'	GREEN MOUNTAIN BOXWOOD	18"	CON'T
CDR	12	ROSA 'MEIDRIFLORA'	CORAL DRIFT ROSE	3 GAL	CON'T
GFS	15	SPIRAEA JAPONICA 'GOLDFLAME'	GOLDFLAME SPIREA	3 GAL	CON'T
LLH	3	HYDRANGEA PANICULATA 'LITTLE LIME'	LITTLE LIME HYDRANGEA	36"	CON'T
CCB	62	HEUCHERA 'CARAMEL'	CARAMEL CORAL BELLS	3 GAL	CON'T
RG	11	CALAMAGROSTIS BRACHYTRICHA	REED GRASS	3 GAL	CON'T
KFG	8	CALAMAGROSTIS X ACUTILFORA 'KARL FOERSTER'	KARL FOERSTER GRASS	3 GAL	CON'T
PBN	66	NEPETA X FAASSENII 'PURRSIAN BLUE'	PURRSIAN BLUE NEPETA	3 GAL	CON'T
PH	11	HOSTA 'PATRIOT'	PATRIOT HOSTA	1 GAL	CON'T

FOREBAY & BIO-SWALE PERENNIALS

RDW	21	CORNUS SERICEA 'CARDINAL'	RED TWIG DOGWOOD	36"	CON'T
POT	94	POTENTILLA FRUTICOSA	SHRUBBY CINQUEFOIL	18"	CON'T
BFS	72	CAREX VULPINOIDEA 'BROWN FOX'	BROWN FOX SEDGE	1 GAL	CON'T
RUD	144	RUDBECKIA HIRTA	BLACK-EYED SUSAN	1 GAL	CON'T



INSTALLATION NOTES:

1. TURF / LAWN
1a. SIDEWALK OR HARDSCAPE
2. 3" DEPTH ALONG TURF EDGE.
2a. 3" DEPTH ALONG HARDSCAPE EDGE
3. SHREDDED BARK MULCH, DEPTH AS SPECIFIED ON PLAN. MULCH TO BE NATURAL IN COLOR.
4. FINISH GRADE, PROVIDE POSITIVE DRAINAGE.
5. CREATE SMOOTH TRANSITION FROM BED EDGE TO FINISH GRADE OF BED, 12" MINIMUM.
6. TOPSOIL AS SPECIFIED.

MULCH EDGE ALONG TURF / HARDSCAPE DETAIL

NOT TO SCALE

GENERAL NOTES

1. ALL LANDSCAPE INSTALLATION SHALL CONFORM TO THE LANDSCAPE REQUIREMENTS AS OUTLINED IN THE ORDINANCES FOR VAN BUREN TOWNSHIP, MICHIGAN.
2. ALL PLANT MATERIAL TO BE INSTALLED PER PLANTING DETAILS & SPECIFICATIONS.
3. ALL LAWN AREA (AS INDICATED) ARE TO BE SEEDED, UNLESS NOTED OTHERWISE, WITH A MINIMUM 3" OF TOPSOIL.
4. ALL LAWN AND LANDSCAPE AREAS (AS INDICATED) WILL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM. WATERING WILL ONLY OCCURE BETWEEN THE HOURS OF 12AM AND 5AM.
5. ALL EDGING (AS INDICATED) TO BE AS SPECIFIED ON DRAWINGS & DETAILS, INSTALL PER MANUFACTURERS SPECIFICATIONS.
6. SIZE AND QUALITY OF LANDSCAPE MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARDS SET FORTH BY 'THE AMERICAN ASSOCIATION OF NURSERYMEN'.
7. LANDSCAPE CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IN WRITING OF ANY PROPOSED CHANGE IN PLANT MATERIAL AND OR LOCATION. LANDSCAPE ARCHITECT TO APPROVAL ALL SUBSTITUTIONS AND OR CHANGES IN WRITING, PRIOR TO INSTALLATION.
8. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL THE DOES NOT MEET THE OWNER, LANDSCAPE ARCHITECT, OR INDUSTRY STANDARDS.
9. LANDSCAPE ARCHITECT TO APPROVE ALL PLANT LOCATIONS PRIOR TO INSTALLATION, ALL CONSTRUCTION AND PLANT MATERIAL LOCATIONS MAY BE ADJUSTED ON SITE IF NECESSARY.
10. PLANT TREES AND SHRUBS GENERALLY NO CLOSER THEN THE FOLLOWING DISTANCES FROM SAFETY PATHS, SIDEWALKS, CURBS, PARKING STALLS & FIRE DEPARTMENT CONNECTIONS (HYDRANTS):
    - DECIDUOUS TREES - 5 L.f.
    - ORNAMENTAL & CONIFEROUS TREES - 10 L.f.
    - SHRUBBERY LESS THAN 12" HT. x 12" WD. (AT MATURITY) - 2 L.f.
11. NO DECIDUOUS OR CONIFEROUS TREES ARE TO BE INSTALLED OVER ANY PROPOSED OR EXISTING UNDERGROUND UTILITY LINES AS SHOWN ON THE OVERALL SITE LANDSCAPE PLAN. REFER TO CIVIL ENGINEERING PLANS FOR EXACT LOCATIONS AND DETAILS.
12. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE THE WORK IS ACCEPTED IN WRITING BY CONROY & ASSOCIATES, INC. THE CONTRACTOR SHALL REPLACE, WITHOUT COST TO THE OWNER, ALL DEAD PLANTS, AND ALL PLANTS NOT IN VIGOROUS THRIVING CONDITIONS, AS DETERMINED BY CONROY & ASSOCIATES, INC., DURING AND AT THE END OF THE GUARANTEE PERIOD. REPLACEMENT MATERIAL SHALL CONFORM TO THE ORIGINAL SPECIFICATION.
13. OWNER AGREES TO SEASONAL MAINTENANCE PROGRAM AND WILL REPLACE ALL DISEASED, DEAD OR DAMAGED PLANTS, REPLENISH MULCH, CONTROL WEEDS, FERTILIZE AND PRUNE BEGINNING UPON COMPLETION OF CONSTRUCTION OF LANDSCAPING.

PLANTING TREES & SHRUBS

1. DIG PLANT POCKET MINIMUM 24" WIDER THAN BALL.
2. DIG PLANT POCKET FOR SHRUBS A MINIMUM OF 6" WIDER THAN BALL OR CONTAINER.
3. LOOSEN SOIL ON SIDES OF POCKET TO BREAK GLAZING CAUSED BY DIGGING. THOROUGHLY COMPACT SUBGRADE.
4. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING BED OR POCKET PRIOR TO INSTALLATION.
5. COMPLETELY REMOVE ALL CONTAINERS AT THE TIME OF PLANTING.
6. ALL UNSUITABLE SOIL TO BE REMOVED FROM SITE.
7. ALL HEIGHTS SHOWN ON DETAILS ARE BEFORE PRUNING.
8. ALL DEPTHS SHOWN ON DETAILS ARE BEFORE SETTLING.
9. SET 7/8 OF BALL IN POCKET, EXPOSING 1/8 OF BALL AT GRADE MINIMUM.
10. BACKFILL PREPARED SOIL TO 1/3 THE DEPTH & COMPACT THOROUGHLY, BACKFILL SECOND 1/3 & COMPACT THOROUGHLY, FINISH BACKFILL & COMPACT THOROUGHLY.
11. LOOSEN & REMOVE ALL LACING FROM BALL.
12. BACKFILL WITH PREPARED SOIL.
13. COVER PLANT POCKET AREA & ALL PLANTING BEDS WITH A MINIMUM 3" DEPTH SHREDDED BARK MULCH. LEAVE 3" RING EXPOSED AT BASE OF ALL INDIVIDUAL TREES. MULCH TO BE NATURAL IN COLOR.
14. ALL ANNUAL & PERENNIAL BEDS ARE TO BE EXCAVATED TO A DEPTH OF 6" & REPLACED WITH A PLANTING MIX CONSISTING OF 50% SANDY SOIL & 50% LEAF COMPOST.
15. ALL PLANTS ARE TO BE PLUMB PRIOR TO STAKING. STAKING IS NOT TO BE USED TO STRAIGHTEN LEANING MATERIAL.
16. ALL STAKING & GUYING MATERIAL TO BE REMOVED BY LANDSCAPE CONTRACTOR ONE (1) YEAR AFTER INSTALLATION.

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

WA
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Landscape Architecture & Construction · Construction Management
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CONROY JOB NO.: 17.117

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD., VAN BUREN CHARTER TOWNSHIP, MI 48111

LANDSCAPE DETAILS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: MVJ
CHECKED BY: PSC

REVISIONS:
CONSTRUCTION SET 03/21/18
CONSTRUCTION SET 05/21/18
WAYNE CO. REV. 08/24/18
CONSTRUCTION SET 09/25/18

DATE: 05/10/17

SHEET NO.: L-2

JOB NO.: 161675

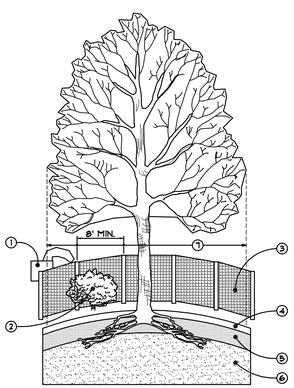
TAG NO.	COMMON NAME	DBH (INCHES)	CONDITION	REMOVE (R)
1001	HAWTHORN	12"	GOOD	R
1002	NORWAY MAPLE 'CRIMSON KING'	18"	GOOD	
1003	HONEY LOCUST	25"	GOOD	
1004	COLORADO BLUE SPRUCE	11"	FAIR	R
1005	NORWAY SPRUCE	17"	GOOD	
1006	HAWTHORN	5"	GOOD	R
1007	NORWAY SPRUCE	11"	GOOD	R
1008	SILVER MAPLE	26"	GOOD	
1009	SILVER MAPLE	38"	FAIR	R
1010	SILVER MAPLE	43"	FAIR	
1011	SILVER MAPLE	39"	FAIR	
1012	SILVER MAPLE	27"	GOOD	
1013	AMERICAN ELM	28"	GOOD	
1014	WHITE MULBERRY	3"	GOOD	
1015	COMMON APPLE	13"	FAIR	R
1016	COMMON BUCKTHORN	3"	FAIR	
1017	COMMON BUCKTHORN	3"	FAIR	
1018	COMMON BUCKTHORN	2"	FAIR	
1019	WHITE PINE	17"	POOR	
1020	RED MAPLE	21"	FAIR	
1021	COMMON APPLE	14"	FAIR	R
1022	BLACK CHERRY	19"	FAIR	R
1023	AMERICAN ELM	17"	FAIR	R
1024	BLACK CHERRY	9"	FAIR	R
1025	AMERICAN ELM	22"	FAIR	R
1026	SWEET GUM	14"	GOOD	R
1027	WEEPING CHERRY	5"	GOOD	R
1028	SILVER MAPLE	42"	GOOD	
1029	COLORADO BLUE SPRUCE	11"	FAIR	R
1030	SWEET CHERRY	9"	GOOD	R
1031	YELLOW BIRCH	11"	FAIR	R
1032	SILVER MAPLE	48"	GOOD	R
1033	SILVER MAPLE	10"	FAIR	
1034	PUSSY WILLOW	19"	FAIR	R
1035	COMMON APPLE	18"	POOR	
1036	STAGHORN SUMAC	4"	GOOD	R
1037	HONEY LOCUST	4"	GOOD	
1038	WHITE SPRUCE	10"	FAIR	R
1039	NORWAY MAPLE	4"	GOOD	
1040	NORWAY MAPLE	5"	GOOD	
1041	ARBORVITAE	5"	GOOD	R
1042	BOX ELDER	5"	GOOD	
1043	PUSSY WILLOW	5"	FAIR	

TREES TO BE REPLACED

1001	HAWTHORN
1004	COLORADO BLUE SPRUCE
1006	HAWTHORN
1007	NORWAY SPRUCE
1009	SILVER MAPLE
1024	BLACK CHERRY
1025	AMERICAN ELM
1026	SWEET GUM
1027	WEEPING CHERRY
1029	COLORADO BLUE SPRUCE
1030	SWEET CHERRY
1031	YELLOW BIRCH
1038	WHITE SPRUCE

REQUIREMENT SUMMARY

TOTAL # OF EXISTING TREES TO BE REMOVED ____ 20
TOTAL # OF NON-REGULATED TREES TO BE REMOVED ____ 7
TOTAL # OF TREES TO BE REPLACED ____ 13
(PER ORDINANCES)



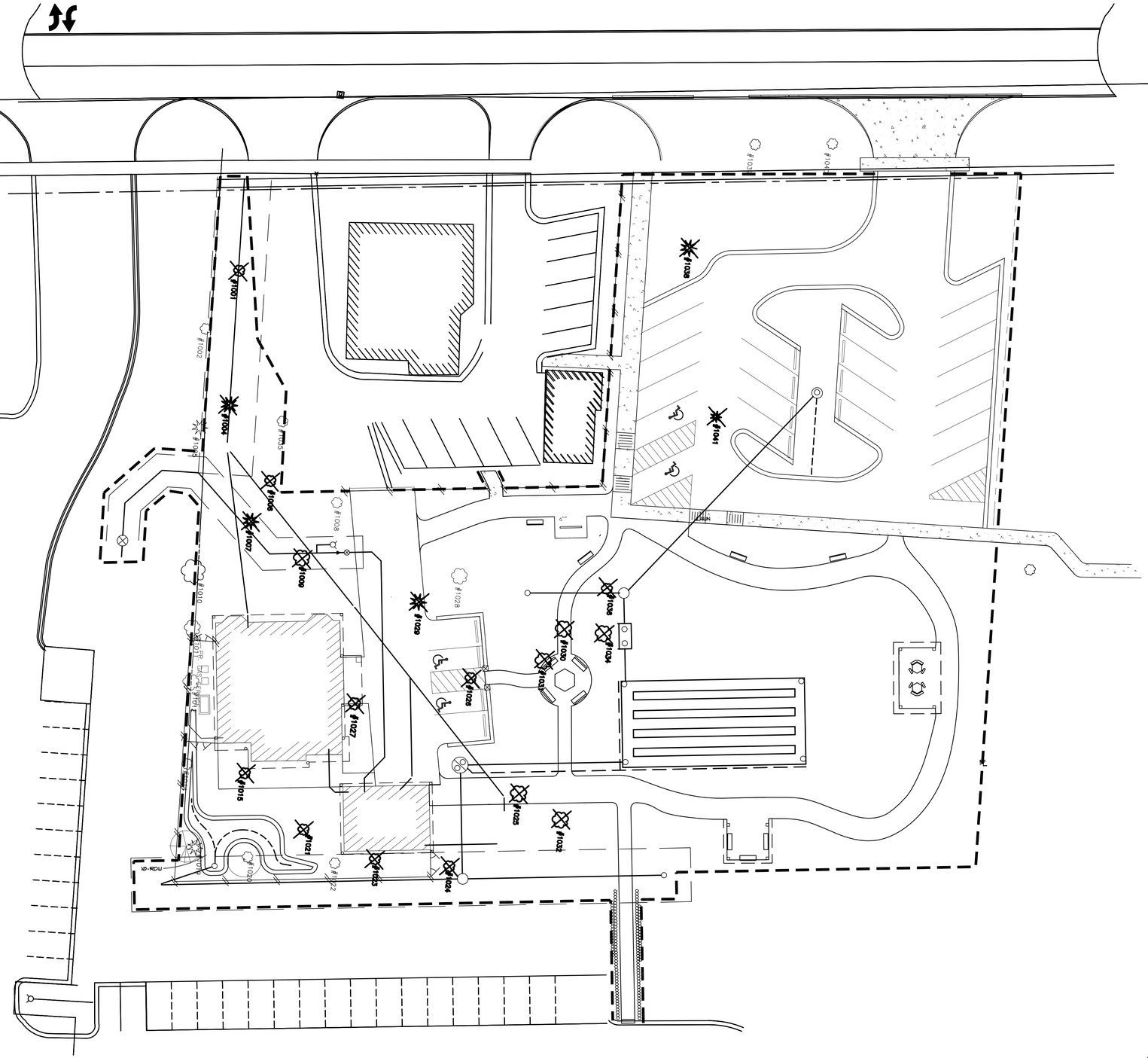
TREE PROTECTION NOTES:

1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, & SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED. THE FORESTRY DIVISION SHALL BE NOTIFIED AFTER THE PROTECTION IS IN PLACE PRIOR TO CONSTRUCTION ACTIVITIES, INCLUDING DELIVERY OF MATERIALS.
2. NO PERSON SHALL CONDUCT ACTIVITIES INSIDE THE DRIP LINES OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN THE DRIP LINES OF SAID TREES.
3. GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINES OF ANY PROTECTED TREE.
4. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE OF ANY KIND TO ANY REMAINING TREES.
5. ALL UTILITY SERVICE REQUESTED MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE THE PROTECTIVE FENCING.
6. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
7. IF THE PROTECTION CAN NOT BE MAINTAINED FOR A TREE THROUGHOUT THE CONSTRUCTION PERIOD, REPLACEMENT OF THAT TREE MAY BE REQUIRED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
8. REGULATED TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY ACTIVITIES MUST BE PROTECTED.

(1) CONSTRUCTION DEBRIS.
(2) UNDER STORY PLANTS.
(3) 4' HIGH, PLASTIC MESH PROTECTIVE FENCE.
(4) ORGANIC LAYER.
(5) TOPSOIL.
(6) MINERAL SOIL.
(7) DRIP LINE.

TREE PROTECTION FENCE DETAIL

NOT TO SCALE



WOODLAND PRESERVATION PLAN

0' 10' 20' 40'
SCALE: 1"=20'

N

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Landscape Architecture & Construction - Construction Management
Site Planning - Golf Course Architecture

CONROY JOB NO.: 17.117

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD., VAN BUREN CHARTER TOWNSHIP, MI 48111

WOODLAND PRESERVATION PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: MVJ
CHECKED BY: PSC

REVISIONS:
CONSTRUCTION SET 03/21/18
CONSTRUCTION SET 05/21/18
WAYNE CO. REV. 08/24/18
CONSTRUCTION SET 09/25/18

DATE: 05/10/17

SHEET NO.:
WP-1

JOB NO.: 161675

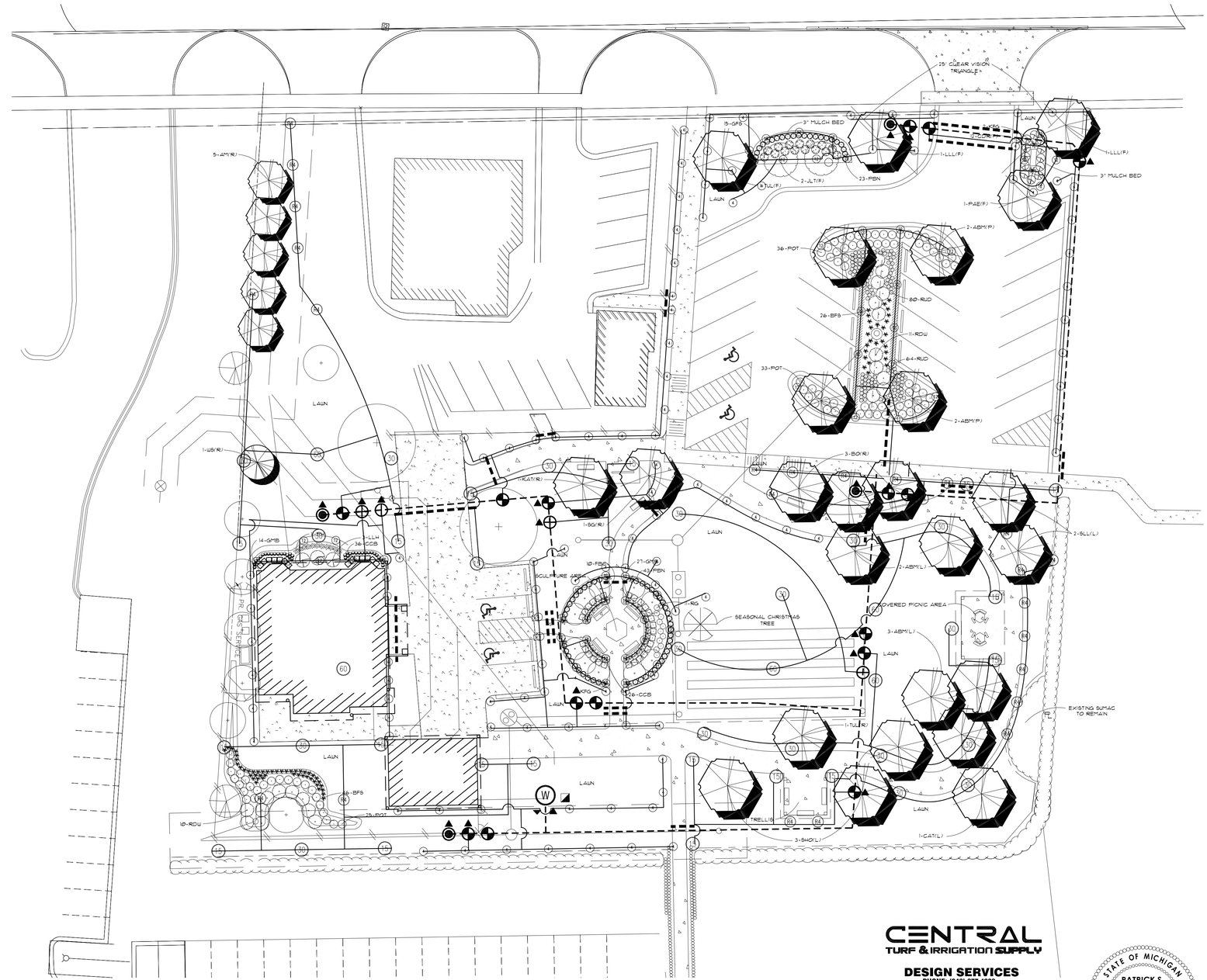
STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT NO. 862
REGISTERED LANDSCAPE ARCHITECT

Irrigation Symbol Legend

SYMBOL	DETAILED DESCRIPTION	MODEL NUMBER
15	HUNTER PGP ULTRA 4" POP-UP TURF ROTOR SPRINKLER 31' RADIUS @ 45 PSI WITH 15 BLUE NOZZLE	PGP-04-15
30	HUNTER PGP ULTRA 4" POP-UP TURF ROTOR SPRINKLER 38' RADIUS @ 45 PSI WITH 30 BLUE NOZZLE	PGP-04-30
60	HUNTER PGP ULTRA 4" POP-UP TURF ROTOR SPRINKLER 43' RADIUS @ 45 PSI WITH 60 BLUE NOZZLE	PGP-04-60
R4	HUNTER PRO-SPRAY 4" POP-UP TURF ROTARY SPRINKLER 13' TO 22' RADIUS @ 45 PSI, F-TQ-TT-H-T-Q-VAN	PRS6-04-PRS40
4	HUNTER PRO-SPRAY 4" POP-UP TURF SPRAY SPRINKLER 8', 10', 12', 15' RADIUS @ 30 PSI, WITH RAIN BIRD F-TQ-TT-H-T-Q-HEVAN NOZZLE *** ONLY INSTALL THRU BOTTOM OF SPRINKLER BODY ***	PRS6-04-PRS30
12	HUNTER PRO-SPRAY 12" POP-UP TURF SPRAY SPRINKLER 8', 10', 12', 15' RADIUS @ 30 PSI, WITH RAIN BIRD F-TQ-TT-H-T-Q-HEVAN NOZZLE *** ONLY INSTALL THRU BOTTOM OF SPRINKLER BODY ***	PRS6-12-PRS30
	HUNTER PGV 24VAC CONTROL VALVE WITH FLOW CONTROL, ANGLE/GLOBE CONFIGURATION INSTALL IN 12"x17"-12" DURA RECTANGLE VALVE BOX, BLACK LID	PGV-151 PGV-101
	HUNTER 1" QUICK COUPLING VALVE, 1" LOCKING RUBBER COVER INSTALL IN 10" DURA ROUND VALVE BOX, BLACK LID, AND WITH LEEMCO LS-120 INSTALL ON 1" 3-ELBOW SWING JOINT USE SCHEDULE 80 THREADED FITTINGS TO BRING VALVE FLUSH WITH GRADE	5RC
	HUNTER I-CORE 48-STATION DUAL TWO-WIRE 120VAC CONTROL TIMER INCLUDE DUAL-48M 48-STATION MODULE INCLUDE DUAL-1 OR DUAL-2 DECODERS, INSTALL WITH ONLY 3M DBRY 6PLICE KITS INCLUDE DUAL-S SURGE ARRESTOR AND GROUNDING ROD ▲ DUAL-S ▲ DUAL-1 ▲ DUAL-2	IC-600-PL-DUAL48
	HUNTER SOLAR SYNC ON-SITE WEATHER/RAIN/FREEZE SENSOR INCLUDE WIRELESS RECEIVER AND WIRELESS SOLAR SYNC SENSOR INSTALL SENSOR IN SOUTHERN EXPOSURE OR BUILDING OR FULL SUN EXPOSURE	WSS-SEN
W	ESTIMATED WATER SOURCE LOCATION AND 1.5" BACKFLOW DEVICE ASSUME 30 GPM @ 50 PSI AFTER BACKFLOW, PLUMBING TRADES TO INSTALL BACKFLOW AND LEAVE 1.5" COPPER STUB OUTSIDE BUILDING FOR IRRIGATION CONTRACTOR POINT OF CONNECTION IRRIGATION CONTRACTOR SHALL INSTALL CU FEMALE ADAPTER AND 1/2" BRASS PLUG FOR WINTERIZATION	
	PVC SDR-26 SOLVENT WELD BELL END MAINLINE, 2", 18" BURY	
	PE IDR-15 PRESSURE CLASS 100# NSF LATERAL, 1.5" AND 1", 12" BURY	
	PVC SDR-21 SOLVENT WELD BELL END SLEEVE, 4", 24" BURY ** DO NOT INSTALL SLEEVES WITH ANY FITTINGS - 90D ELBOWS, 45D ELBOWS, 22D ELBOWS, OR TEES **	

Irrigation Specifications

1. ALL PLUMBING AND ELECTRICAL WORK SHALL BE COMPLETED AS PER ALL LOCAL CODES.
2. INSTALLATION OF MATERIALS SHALL BE PER MANUFACTURERS RECOMMENDATIONS OR AS SPECIFIED AND PURCHASED FROM A LOCAL AUTHORIZED HUNTER IRRIGATION DISTRIBUTOR, CENTRAL TURF & IRRIGATION SUPPLY, INC., CONTACT ADAM WENDT 248-877-4238. IRRIGATION EQUIPMENT PURCHASED FROM UNAUTHORIZED DISTRIBUTOR WILL BE REJECTED.
3. NO EXTRA PAYMENT WILL BE MADE WHERE PIPING MUST BE OFFSET TO AVOID EXISTING CONDITIONS, OTHER WORK OR WHERE CHANGES ARE NECESSARY TO FACILITATE INSTALLATION.
4. THE IRRIGATION SYSTEM SHALL BE CONSTRUCTED FOR WINTERIZATION BY THE CONTRACTOR, AT NO CHARGE FOR THE FIRST YEAR.
5. ALL INSTALLED MATERIALS SHALL BE NEW AND WITHOUT FLAWS.
6. THE COMPLETE SYSTEM SHALL HAVE A ONE-YEAR WARRANTY AFTER FINAL PROJECT ACCEPTANCE ON ALL PARTS AND LABOR.
7. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL INSTRUCT THE OWNER, OR REPRESENTATIVE, IN THE PROPER OPERATION, MAINTENANCE, AND WINTERIZATION OF THE IRRIGATION SYSTEM.
8. THE CONTRACTOR SHALL PROVIDE AND KEEP CURRENT A COMPLETE SET OF RECORD DRAWINGS WHICH SHALL BE SUBMITTED AND APPROVED BY THE OWNER, OR REPRESENTATIVE.
9. WHEN THE SYSTEM IS COMPLETE, THE CONTRACTOR SHALL PERFORM OF COVERAGE TEST. THE IRRIGATION SYSTEM SHALL PROVIDE 100% COVERAGE OF ALL LAWN AND LANDSCAPE PLANTING AREAS. NOZZLE SIZES AND SOME PATTERNS HAVE BEEN SPECIFIED ON THE DRAWING, THE CONTRACTOR SHALL FIELD MODIFY THE NOZZLE SIZE AND PATTERN BASED UPON FIELD CONDITIONS.
10. ALL IRRIGATION MAINLINE PIPING SHALL BE SDR-26 PVC PIPE AND ALL IRRIGATION LATERAL PIPING SHALL BE IDR-19 PE PIPE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SETTLING IN THE IRRIGATION TRENCHES OR ASSOCIATED IRRIGATION WORK AS A WARRANTY ITEM.
12. ALL IRRIGATION VALVES SHALL BE LOCATED IN PROFESSIONAL GRADE VALVE BOXES, SIZE OF VALVE BOXES SHALL VARY WITH NUMBER OF VALVES LOCATED IN BOX. ALL VALVE BOX LID ELEVATION SHALL BE SET FLUSH WITH FINISHED GRADE. PROVIDE BOX SIZE THAT WILL ALLOW CLEARANCE AROUND ALL SIDES OF VALVES.
13. WATERPROOF WIRE CONNECTORS SHALL BE USED ON ALL FIELD WIRE SPLICES AND CONNECTIONS.
14. ALL CONTROL WIRE SHALL BEAR A U/L APPROVED LABEL FOR DIRECT UNDERGROUND BURIAL IN NATIONAL ELECTRICAL CODE CLASS IT CIRCUITS, AWG SIZES. ALL CONTROL WIRE RUNS LESS THAN 1000 LF SHALL HAVE NO SPLICES. IF A SPLICE OCCURS ON A FIELD CONTROL WIRE, THE CONTRACTOR SHALL INSTALL THE SPLICE IN A 6" ROUND VALVE BOX USING APPROVED WATERTIGHT CONNECTORS, IF APPROVED BY THE LANDSCAPE ARCHITECT. OTHERWISE THE ENTIRE FIELD CONTROL WIRE SHALL BE REMOVED AND REPLACED.
15. ALL CONTROL WIRE SHALL BE BURIED BELOW THE MAINLINE PIPE, ANY EXPOSED WIRING SHALL BE INSTALLED IN SCH 40 PVC ELECTRICAL CONDUIT.
16. THE IRRIGATION CONTROLLER SHALL BE INSTALLED AS INDICATED ON THE DRAWING. CONTRACTOR SHALL WALL MOUNT AT HEIGHT APPROVED BY THE LANDSCAPE ARCHITECT. THE GENERAL CONTRACTOR WILL PROVIDE 120V FOR IRRIGATION CONTROL TIMER, PER LOCAL ELECTRICAL CODE. THE CONTRACTOR SHALL INSTALL THE WIRELESS SOLAR SYNC E.T. BASED WEATHER STATION IN A LOCATION APPROVED BY THE LANDSCAPE ARCHITECT.
17. IRRIGATION VALVE BOXES ARE TO BE INSTALLED IN LANDSCAPE PLANTING AREAS OR OTHER PROTECTED SPACES, CONFIRM FINAL LOCATION WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
18. IRRIGATION MAINLINE PIPE SHALL BE BURIED 18" BELOW FINISHED GRADE AND IRRIGATION LATERAL PIPING SHALL BE BURIED 12" BELOW FINISHED GRADE.
19. THE CONTRACTOR SHALL EXPOSE ENDS OF ALL IRRIGATION SLEEVES. ANY BROKEN OR SHATTERED ENDS OF THE IRRIGATION SLEEVES SHALL BE CUT TO A CLEAN END BEFORE INSTALLATION OF MAINLINE PIPE AND WIRES, OR LATERAL PIPE. ALL SLEEVE ENDS SHALL BE INSPECTED BY THE LANDSCAPE ARCHITECT OR BEFORE BURYING.
20. FINAL CONNECTION OF THE VALVE WIRES TO THE CONTROLLER SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
21. THE CONTRACTOR SHALL, WITHOUT EXPENSE TO THE OWNER, LOCATE ALL UNDERGROUND UTILITIES WHICH MAY EFFECT OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO ALL UNDERGROUND UTILITIES.
22. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED OR RECONSTRUCTED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
23. ALL MAINLINES SHALL BE PRESSURE TESTED AT 1.5 TIMES THE STATIC PRESSURE FOR A MINIMUM TWO HOUR PERIOD PRIOR TO BACKFILLING OF TRENCHES, TEST WILL BE CONSIDERED SUCCESSFUL IF NO PRESSURE LOSS OCCURS DURING THE TWO HOURS, IF ANY LEAKS ARE PRESENT THEY SHALL BE RE-TESTED PRIOR TO BACKFILLING TRENCHES.
24. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS, NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER MAY BE APPROVED. ALL DAMAGED AND REJECTED PIPE SHALL BE REMOVED FROM THE SITE AT THE TIME OF REJECTION.
25. THE CONTRACTOR SHALL FLUSH ALL LATERAL PIPING AND EMITTER LINES PRIOR THE INSTALLING SPRINKLERS OR EMITTERS, DEBRIS IS TO BE FLUSHED FROM ALL PIPE PRIOR TO INSTALLATION OF SPRINKLERS.
26. THE CONTRACTOR SHALL BE RESPONSIBLE TO BE FAMILIAR WITH ALL GRADE DIFFERENCE, LOCATION OF WALLS STRUCTURES AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL COORDINATE IT'S WORK WITH OTHER CONTRACTORS, FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES AND LATERALS UNDER SIDEWALKS, PAVING, AND RETENTION WALLS.
27. SHOULD DISCREPANCIES ARISE BETWEEN THESE CONSTRUCTION DOCUMENTS AND ACTUAL FIELD CONDITIONS WHICH REQUIRE FIELD MODIFICATIONS OR PLAN REVISIONS, THE LANDSCAPE ARCHITECT, OR OWNER'S REPRESENTATIVE SHALL BE CONTACTED PRIOR TO CONSTRUCTION FOR RESOLUTION OR PLAN REVIEW.
28. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE DESIGN. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, OR THE OWNERS REPRESENTATIVE, IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.



IRRIGATION PLAN

Conroy N

0' 10' 20' 40'

SCALE: 1"=20'

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TURF & IRRIGATION SUPPLY

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PATRICK S. CONROY
LANDSCAPE ARCHITECT
NO. 862
REGISTERED LANDSCAPE ARCHITECT

ADAM V. WENDT
CERTIFIED
IRRIGATION CONTRACTOR
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Site Planning - Golf Course Architecture

CONROY JOB NO.: 17.11

VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD., VAN BUREN CHARTER TOWNSHIP, MI 48111

IRRIGATION PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY:	AVW
CHECKED BY:	PSC

REVISIONS:
- CONSTRUCTION SET 03/21/18
- CONSTRUCTION SET 05/21/18
- WAYNE CO. REV. 08/24/18
- 09/25/18 CONSTRUCTION SET

DATE: 05/10/17

SHEET NO.: I-1

JOB NO.: 161675

GENERAL

1. THIS BUILDING HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE, 2015 EDITION

A. DESIGN LOADS:

A. FLOOR LIVE LOADS: CLASSROOMS = 40 PSF, CORRIDORS = 100 PSF (MBC TABLE 1607.1)

B. ROOF LIVE LOAD = 20 PSF (MBC 1607.12)

C. SNOW LOADS (MBC 1608)

a. GROUND SNOW LOAD Pg = 20 PSF (MBC FIG. 1608.2)
b. SNOW EXPOSURE FACTOR, Ce = 1.0 (ASCE 7-10 7.3.1)
c. THERMAL FACTOR, Ct = 1.0 (ASCE7-10 7.3.2)
d. BUILDING CATEGORY II (MBC TABLE 1604.5)
e. IMPORTANCE FACTOR, Is = 1.0 (ASCE7 TABLE 1.5-2)
f. FLAT ROOF SNOW LOAD, Pf = 14 PSF + DRIFTING (ASCE7-10 7.3)
g. DRIFTING CALCULATED PER ASCE 7-10
h. UNBALANCED SNOW LOAD: WINDWARD = 6.7 PSF, LEEWARD = 34.5 PSF

D. WIND LOADS (MBC 1609)

a. BASIC WIND SPEED V = 115 MPH (3-SECOND GUST) (ASCE7-10 FIG 26.5-1A)
b. BUILDING CATEGORY II (MBC TABLE 1604.5)
c. IMPORTANCE FACTOR, Iw = 1.0 (ASCE7-10 TABLE 1.5-2)
d. EXPOSURE CATEGORY C (MBC 1609.4.3)
e. INTERNAL PRESSURE COEFFICIENT ±0.18
f. COMPONENTS AND CLADDING LOAD = 25.4 PSF (ASCE7-10 CH.30)

E. EARTHQUAKE LOADS (MBC 1613)

a. SEISMIC RISK CATEGORY II (MBC 1613.3.5)
b. SEISMIC IMPORTANCE FACTOR, Ie = 1.0 (ASCE7-10 FIG 1.5-2)
c. Ss = 0.11 (ASCE7-10 FIG. 22-1). S1 = 0.04 (ASCE7-10 FIG. 22-1)
d. SITE CLASS = D (MBC TABLE 1613.3.2)
e. Fa = 1.6 (MBC TABLE 1613.3.3(1)) Fv = 2.4 (MBC TABLE 1613.3.3(2))
f. Sms = Fa*Ss = 0.18 (MBC). Sm1 = Fv51 = 0.10 (MBC)
g. Sds = (2/3)*Sms = 0.117 (MBC 1613.3.3). Sd1 = (2/3)*Sm1 = 0.064 (MBC 1613.3.3)
h. SEISMIC DESIGN CATEGORY = A (MBC TABLE 1613.3.5(1))
i. SEISMIC RESISTING SYSTEM: WOOD SHEAR WALLS (ASCE7-10 TABLE 12.14-1)
j. DESIGN BASE SHEAR = 0.017W (ASCE7-10)
k. SEISMIC RESPONSE COEFFICIENT, Cs = 0.017 (ASCE7-10)
l. RESPONSE MODIFICATION FACTOR, R = 7 (ASCE7-10)
m. EARTHQUAKE LOADS CALCULATED PER SECTION 1613.3.5.2 "SIMPLIFIED ANALYSIS PROCEDURE FOR SEISMIC DESIGN OF BUILDINGS."
n. DEFLECTION AMPLIFICATION FACTOR, Cd = 4.5 (ASCE7-10)

F. GUARD/HANDRAIL LOADS= 50 PLF LOAD APPLIED IN ANY DIRECTION AT THE TOP AND 200 POUND CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP. LOADS NOT ASSUMED TO ACT CONCURRENTLY.

2. THE ARCHITECTURAL DRAWINGS SHALL BE WORKED WITH THE STRUCTURAL DRAWINGS. SOME STRUCTURAL INFORMATION HAS BEEN INCORPORATED IN THE ARCHITECTURAL DRAWINGS.

3. THE STRUCTURE SHALL BE CONSIDERED TO BE IN AN UNSTABLE CONDITION UNTIL ALL WALL AND ROOF STRUCTURES ARE COMPLETED. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR STABILITY AND TO RESIST LATERAL LOADS DURING ERECTION.

4. ALL NON LOAD BEARING WALLS SHALL BE CONSTRUCTED TO ALLOW FOR THE VERTICAL DEFLECTION OF THE STRUCTURE ABOVE.

FOUNDATION

1. FOUNDATIONS ARE DESIGNED FOR A MAXIMUM ALLOWABLE BEARING CAPACITY OF 2,500 PSF PER THE RECOMMENDATIONS IN THE SOIL EVALUATION REPORT PREPARED BY SME, DATED AUGUST 30, 2017. FOUNDATIONS SHALL BEAR ON NATURAL CLAY UNDISTURBED SOIL OR ENGINEERED FILL PROPERLY PLACED UPON THESE CLAY SOILS.

2. THE CONTRACTOR WILL RETAIN THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEER TO MONITOR THE FOUNDATION WORK & DETERMINE THE QUALITY OF THE SOIL AT ALL FOOTING LOCATIONS. IF UNSUITABLE MATERIALS ARE ENCOUNTERED AT THE FOOTING LOCATIONS, THE UNSUITABLE MATERIALS SHALL BE REMOVED & REPLACED WITH COMPACTED ENGINEERED FILL OR THE FOOTING LOWERED AT THE DIRECTION OF THE ARCHITECT OR ENGINEER.

3. CONTRACTORS SHALL BE AWARE OF AND VERIFY LOCATION OF ALL UNDERGROUND UTILITIES, TANKS, ETC. DUE CARE SHALL BE EXERCISED DURING EXCAVATION SO THAT EXISTING UTILITIES ARE NOT DAMAGED

4. THE AREA OF PROPOSED CONSTRUCTION SHALL BE STRIPPED OF THE EXISTING TOP SOIL & PAVEMENT MATERIALS. ALL REMNANTS OF PREVIOUS STRUCTURES OCCUPYING THE SITE SHALL BE REMOVED AND BACKFILLED WITH ENGINEERED FILL, PROPERLY PLACED AND COMPACTED. FOLLOWING THE REMOVAL OF THE ABOVE ITEMS, IF COHESIVE MATERIALS ARE EXPOSED AT THE SUBGRADE ALL AREAS OF PROPOSED DEVELOPMENT SHALL BE THOROUGHLY PROOFROLLED UNDER THE OBSERVATION OF A QUALIFIED SOILS ENGINEER. THE PROOF ROLLING SHOULD BE PERFORMED WITH A FULLY LOADED DUMP TRUCK OR OTHER HEAVILY LOADED PNEUMATIC TIRED VEHICLE MAKING CONTINUOUS SIDE-BY-SIDE PASSES ACROSS THE ENTIRE AREA. SUBGRADE AREAS THAT DEFLECT EXCESSIVELY OR PUMP DURING PROOF ROLLING SHOULD BE EXCAVATED AND BACK FILLED WITH ACCEPTABLE ENGINEERED FILL. IF EXISTING GRANULAR FILL MATERIALS ARE EXPOSED UPON STRIPPING OPERATIONS AT THE SUBGRADE, THE AREA SHOULD BE THOROUGHLY DENSIFIED WITH A LARGE DRUM ROLLER SUCH THAT THE TOP 12 INCHES IS COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY VALUE DETERMINED BY ASTM STANDARD D-1557 (MODIFIED PROCTOR)

5. UPON COMPLETION OF THE SUB GRADE PREPARATION, THE SITE CAN BE RAISED TO THE PROPER ELEVATION WITH PROPERLY PLACED AND COMPACTED ENGINEERED FILL. ALL COMPACTED BACKFILL SHALL BE A CLEAN, UNIFORM GRADED, GRANULAR MATERIAL AND FREE OF FROZEN CHUNKS, ORGANICS, DEBRIS OR OTHER DELETERIOUS MATERIALS. ALL COMPACTED BACKFILL SHALL BE PLACED IN NO MORE THAN 10" LOOSE LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). THIS MAY BE DECREASED TO 90% IN THOSE AREAS TO BE LANDSCAPED & NOT SUPPORTING STRUCTURE OR PAVEMENT.

CONCRETE

1. THE FOLLOWING CODES GOVERN THE DESIGN, DETAILING, FABRICATION AND CONSTRUCTION OF ALL REINFORCED CONCRETE:
   A. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-11)
2. ALL CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS:
   FOOTINGS & PIERS 3000 PSI
   SLAB ON GRADE 4000 PSI
   ALL EXTERIOR EXPOSED CONCRETE SHALL BE ENTRAINED.
3. BEFORE PLACING CONCRETE REFER TO ARCHITECTURAL, MECHANICAL & ELECTRICAL DRAWINGS FOR LOCATIONS OF PIPE SLEEVES, EMBEDDED ITEMS, OPENINGS, EQUIPMENT PADS, ELECTRICAL CONDUITS, RECESSES, DRAINS, ETC. ALL OPENINGS FOR PIPE, CONDUITS, ETC. SHALL BE SLEEVED. MINIMUM SLEEVE SPACING SHALL BE 3 SLEEVE DIAMETERS.
4. ALL DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60.
5. ALL DEFORMED BAR REINFORCING SHALL BE SPLICED A MINIMUM OF 32 BAR DIAMETERS.
6. ALL WELDED WIRE FABRIC SHALL BE ASTM A-185 SHEETS SHALL BE LAPPED A MINIMUM OF WIRE SPACING + 2".
7. PROVIDE RIGHT CORNER BARS W/ STD LAP @ CORNER OF ALL CONC. WALLS. LAP W/ TYPICAL WALL REINFORCING. SIZE OF BAR TO MATCH TYPICAL HORIZONTAL REINFORCING.
8. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION PER 2015 MBC CODE TABLE 1705.3

CONCRETE MASONRY

1. THE FOLLOWING CODES GOVERN THE DESIGN, DETAILING & CONSTRUCTION OF ALL MASONRY:
   A. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-11)
   B. SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-11)
2. ALL MASONRY SHALL HAVE A COMPRESSIVE STRENGTH, fm = 2500 PSI.
3. ALL MORTAR FOR LOAD BEARING AND EXTERIOR CONCRETE MASONRY SHALL BE TYPE S, ABOVE GRADE AND TYPE M BELOW GRADE PROPORTIONED BY VOLUME ACCORDING TO ASTM C-270.
4. ALL GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, AND SHALL BE PROPORTIONED BY VOLUME ACCORDING TO ASTM C-476.
5. ALL CONCRETE MASONRY UNITS SHALL BE ASTM C-90 GRADE N,TYPE I UNITS MEDIUM WEIGHT UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FURTHER DETAILS WITH REGARD TO FACE FINISH.
6. ALL MASONRY WALLS SHALL HAVE HORIZONTAL JOINT REINFORCEMENT (LADDER TYPE) AT 16" O.C. PROVIDE PREFABRICATED CORNER PIECES AT ALL CORNERS & INTERSECTIONS OF WALLS.
7. ALL DEFORMED BAR REINFORCING SHALL BE ASTM A-615 GRADE 60. LAP SPLICES IN WALLS SHALL BE A MINIMUM OF 48 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
8. REINFORCE ALL MASONRY WALLS AS SHOWN ON SCHEDULE AND DETAILS. PLACE BAR ON CENTERLINE OF WALL IN FULLY GROUTED CELL FULL HEIGHT OF THE WALL. LAP REINFORCEMENT WITH TYPICAL FOOTING DOWEL, SEE WALL SECTION FOR DOWELS REQUIREMENTS.
9. SEE ARCHITECTURAL DRAWINGS FOR MASONRY JOINT LOCATIONS.
10. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION PER 2015 MBC CODE SECTION 1705.4.

STRUCTURAL STEEL

1. THE FOLLOWING CODE SHALL GOVERN THE DETAILING, FABRICATION & ERECTION OF ALL STEEL:
   A. MANUAL OF STEEL CONSTRUCTION, 9TH EDITION (AMERICAN INSTITUTE OF STEEL CONSTRUCTION)

   WIDE FLANGE SHAPES —— ASTM A-992, Fy = 50 KSI
   STEEL PLATE, CHANNELS & ANGLES —— ASTM A-36
   STRUCTURAL STEEL TUBES —— ASTM A-500 GRADE B, Fy = 46KSI
   PIPES —— ASTM A53 TYPE E OR S GRADE B
2. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-90 STRUCTURAL WELDING CODE. E70XX ELECTRODES SHALL BE USED FOR WELDED SHOP & FIELD CONNECTIONS.
3. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4"Ø ASTM A-325 BOLTS. ALL BOLTED CONNECTIONS SHALL BE CONSIDERED AS BEARING UNLESS NOTED OTHERWISE.
4. ALL BEAM CONNECTIONS ARE TO CONFORM TO AISC STANDARD TWO ANGLE WEB CONNECTIONS CAPABLE OF SUPPORTING 50% OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM OR FOR LOADS INDICATED ON DRAWING. NO CONNECTION SHALL CONSIST OF LESS THAN TWO 3/4"Ø BOLTS OR A WELD DEVELOPING LESS THAN 10 KIPS.
5. ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS NOTED OTHERWISE. FIELD WELDING IS NOT ALLOWED EXCEPT WHERE SPECIFICALLY INDICATED OR APPROVED.
6. ALL GROUT PADS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 7 DAYS.
7. ALL ANCHOR BOLTS SHALL BE ASTM A-36.
8. PROVIDE AND HAVE IN PLACE ADEQUATE LATERAL BRACING & VERTICAL SUPPORTS FOR THE SAFE ERECTION AND TRUE ALIGNMENT OF THE STRUCTURAL STEEL. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR THE SAFE ERECTION & TEMPORARY BRACING OF STRUCTURAL STEEL.
9. ALL DIMENSIONS RELATED TO STRUCTURAL STEEL USED TO SUPPORT EQUIPMENT OR FRAME OPENINGS SHALL BE VERIFIED WITH CERTIFIED AND APPROVED SHOP DRAWINGS OF PURCHASED EQUIPMENT PRIOR TO DETAILING AND FABRICATION.
10. WELD ALL STEEL BEAMS TO BEARING PLATES W/ 5/16x 4" LONG FILLET WELD, EACH SIDE OF BEAM U.N.O.
11. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION PER 2015 MBC CODE.

WOOD FRAMING

1. DIMENSIONAL FRAMING MATERIAL SHALL BEAR THE GRADE MARK OF AN ALSC APPROVED AGENCY AND SHALL HAVE MET THE REQUIREMENTS FOR:
   A. PLATES AND BLOCKING - HEM-FIR No. 2 OR BETTER
   B. REFER TO PLANS FOR THE LOAD BEARING STUD WALL SPECIFICATIONS.
2. ROOF SHEATHING AT THE SLOPED ROOF AREAS SHALL BE 1/2 INCH APA RATED WITH A PANEL SPAN RATING OF 32/16 AND SHALL BE EXTERIOR GRADE.
3. NAIL ROOF DECK / WALL SHEATHING TO SUPPORTS WITH 8d NAILS SPACED AT 6 INCHES O.C. AT SUPPORTED EDGES AND AT 12 INCHES O.C. AT INTERMEDIATE SUPPORTS.
4. ALL FRAMING SHALL BE ANCHORED TO SUPPORTS USING SIMPSON STRONG TIE CONNECTORS OR EQUAL. SEE DETAILS FOR SPECIFIC REQUIREMENTS.
5. ALL NAILS FOR NAILING OF STRUCTURAL LUMBER SHALL BE COMMON NAILS. ALL NAILING SHALL COMPLY WITH THE RECOMMENDED NAILING SCHEDULE "TABLE 1" OF " THE MANUAL OF HOUSE FRAMING" BY NFPA UNLESS NOTED OTHERWISE.
6. ALL FRAMING SHALL BE ERECTED TRUE LEVEL AND/OR PLUMB. MEMBERS SHALL BE SECURELY NAILED OR BOLTED IN PLACE AS DETAILED AT THE PROPER LOCATIONS OR SPACINGS INDICATED. ALL FRAMING MEMBERS SHALL BE OF FULL LENGTH WITHOUT PIECES ADDED OR SPLICED. FURRING, BLOCKING, NAILERS, ETC. SHALL BE SECURELY ANCHORED IN PLACE.
7. COMPLY WITH THE RECOMMENDATIONS AND PRACTICES OF THE AITC, NFPA AND TIP FOR THE INSTALLATION OF ALL WOOD FRAMING.
8. ALL WOOD IN CONTACT WITH MASONRY OR CONCRETE SHALL BE TREATED.
9. PROVIDE ONE TRIMMER AND END SUPPORTS AS SPECIFIED ON HEADER SCHEDULE AT THE END OF ALL HEADERS. PROVIDE FILL PLATES AS NEEDED UNLESS NOTED OTHERWISE. IN EXTERIOR WALLS, PROVIDE ONE FULL HEIGHT STUD TRIMMER FOR EACH 3'-0" OF WIDTH AT EACH END. SUFFICIENTLY ANCHOR ALL BEAMS AT EACH BEARING END.
10. LVL ON PLAN INDICATES THE LOCATION OF PRE MANUFACTURED LAMINATED VENEER LUMBER BEAM AS MANUFACTURED BY " TRUSS JOIST MACMILLAN CORPORATION" OR AN APPROVED EQUIVALENT. BEAM SHALL HAVE THE FOLLOWING ALLOWABLE STRESS VALUES:
    E= 1,900,000 PSI
    G= 118,750 PSI
    Fb= 2,600 PSI
    Fc= 750 PSI (PERPENDICULAR)
    Fc= 2,510 PSI (PARALLEL)
    Fv= 285 PSI
11. WHERE (2) OR MORE UNITS OF STANDARD LUMBER ARE TO BE USED AS A HEADER, EACH PLY SHALL BE NAILED TOGETHER WITH (2) ROWS OF 16d NAILS AT 12" O.C.
12. PROVIDE JOIST HANGERS FOR ALL BEAMS AND JOISTS WHICH FRAME INTO THE SIDE OF GIRDERS. HANGERS HALL HAVE A MINIMUM VERTICAL SHEAR CAPACITY OF V (LB.) = 100 x SPAN (FT.) / 2
13. ALL WOOD PROVIDED SHALL BE SEASONED WITH A MAXIMUM MOISTURE CONTENT OF 19% AT THE TIME OF DRESSING.

PREFABRICATED WOOD TRUSSES

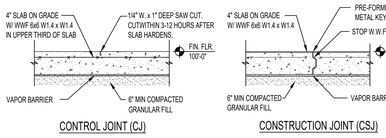
1. ALL WOOD TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING LOADS:

   TOP CHORD DEAD LOAD ---------- 10 PSF + WEIGHT OF TRUSS
   BOTTOM CHORD DEAD LOAD ---------- 10 PSF + WEIGHT OF TRUSS
   TOP CHORD LIVE LOAD---------- 28 PSF
2. THE EXTENT OF ROOF TRUSSES SHOWN ON THE PLANS IS FOR REFERENCE ONLY. THE FABRICATOR SHALL VERIFY ALL DIMENSIONS, TRUSS LAYOUT, CONFIGURATION, NUMBER OF EACH TYPE OF TRUSS REQUIRED, LOADING AND DETAILS.
3. WOOD TRUSSES SHALL BE DESIGNED, FABRICATED AND INSTALLED PER TRUSS PLATE INSTITUTE, INC. SPECIFICATIONS AND NFPA NATIONAL, INC. SPECIFICATIONS AND NFPA NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
4. ALL TRUSSES SHALL BE ANCHORED TO SUPPORTS AS INDICATED AND IF NOT INDICATED, PER MANUFACTURERS RECOMMENDATIONS.
5. DEFLECTION OF TRUSSES SHALL BE LIMITED TO MAXIMUM LIVE LOAD DEFLECTION OF SPAN/360.
6. SUBMITTALS:
   A. SHOP DRAWINGS SHOWING SIZES, DESIGN VALUES, MATERIALS, AND DIMENSIONAL RELATIONSHIPS OF COMPONENTS AS WELL AS BEARING AND ANCHORAGE DETAILS.
   B. TO EXTENT ENGINEERING DESIGN CONSIDERATIONS ARE FABRICATOR'S RESPONSIBILITY, SUBMIT DESIGN ANALYSIS AND TEST REPORTS INDICATING TRUSS PERFORMANCE CHARACTERISTICS. COMPLY WITH REQUIREMENTS.
   C. CALCULATIONS AND SUBMITTALS OF REQUIRED CONNECTORS TO CONNECT TRUSSES TO GIRDER TRUSSES.
   D. PROVIDE SHOP DRAWINGS WHICH HAVE BEEN SIGNED AND STAMPED BY AN ENGINEER LICENSED TO PRACTICE IN THE STATE OF MICHIGAN.
7. DESIGN AND SPECIFICATION OF TEMPORARY AND PERMANENT WOOD TRUSS BRACING BY TRUSS MANUFACTURER AND SHOWN ON SHOP DRAWINGS. TRUSS INSTALLER SHALL PROVIDE AND INSTALL BRACING PER SHOP DRAWINGS.

GLUED LAMINATED TIMBER

1. THE PRODUCTION OF STRUCTURAL GLUED LAMINATED TIMBER UNDER THESE SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARD ANSI/AISC A190.1 STRUCTURAL GLUED LAMINATED TIMBER.
2. GLUED LAMINATED TIMBER SHALL BE COMBINATION 30F-E2-SP/SP.
3. ADHESIVE USED SHALL COMPLY WITH AMERICAN NATIONAL STANDARD ANSI/AITC A190.1; STRUCTURAL GLUED LAMINATED TIMBER.
4. APPEARANCE GRADES SHALL BE IN ACCORDANCE WITH AITC 110; STANDARD APPEARANCE GRADES FOR STRUCTURAL GLUED LAMINATED TIMBER SEE SPECIFICATION FOR ADDITIONAL INFORMATION.

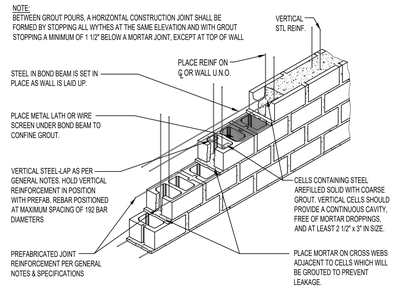
NOTE:
CONTRACTOR TO DETERMINE LOCATION OF CONSTRUCTION JOINTS (CSJ). CONSTRUCTION JOINTS TO BE PLACED IN LIEU OF CONTROL JOINTS AT CJ. LOCATIONS INDICATED ON PLANS ONLY.



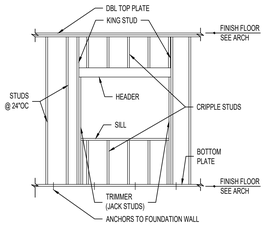
CONTROL JOINT (CJ) CONSTRUCTION JOINT (CSJ)

1 / S1.0 — SLAB ON GRADE DETAILS
SCALE: NOT TO SCALE

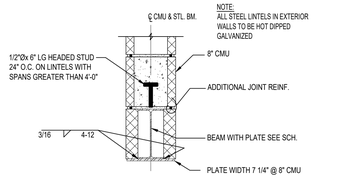
NOTE:
BETWEEN GROUT POURS, A HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BY STOPPING ALL WYTHES AT THE SAME ELEVATION AND WITH GROUT STOPPING A MINIMUM OF 1 1/2" BELOW A MORTAR JOINT, EXCEPT AT TOP OF WALL



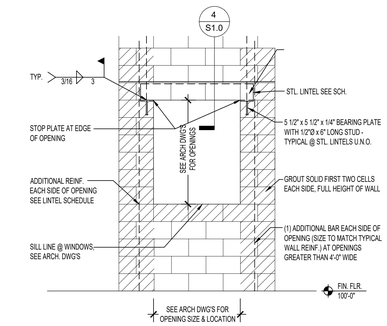
2 / S1.0 — LOW LIFT-GROUTING TECHNIQUE GROUT IS PLACED IN LIFT UP TO 5'-0"
SCALE: NOT TO SCALE



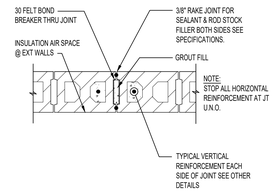
3 / S1.0 — TYP. STUD WALL OPENING
SCALE: 1/4" = 1'-0"



4 / S1.0 — TYP. STL. LINTEL SECTION
SCALE: 1 1/2" = 1'-0"



5 / S1.0 — TYP. MASONRY OPENING DTL. (STL. LINTEL)
SCALE: NOT TO SCALE



6 / S1.0 — MASONRY CONTROL JOINT DETAIL (MCJ)
SCALE: NONE

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FLOOR PLANS - NEW WORK

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: CAM
CHECKED BY: JWQ

REVISIONS:
CONSTRUCTION SET 9/25/2018

DATE: 08/11/17

SHEET NO.:
S1.0

JOB NO.: 161675

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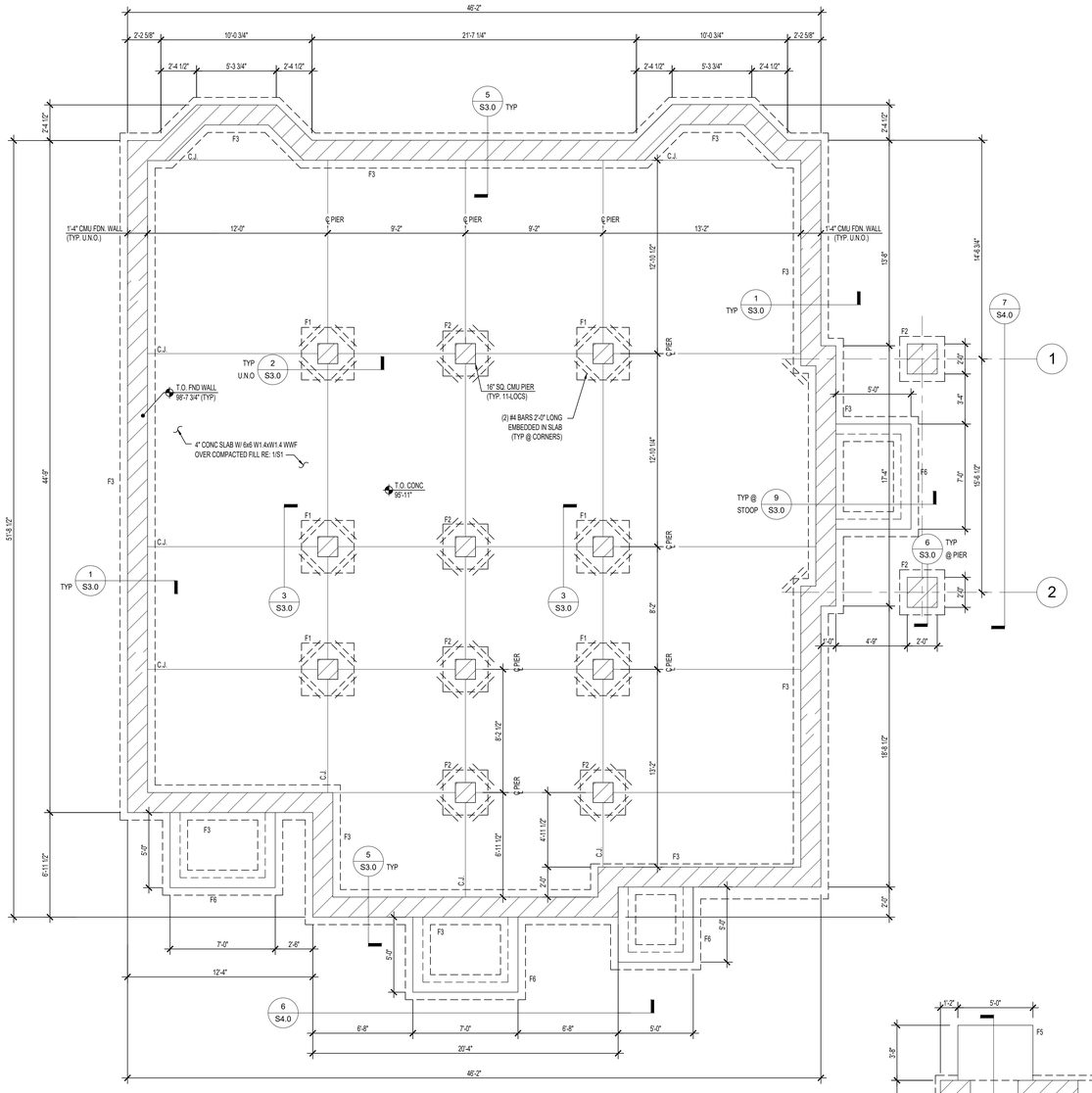


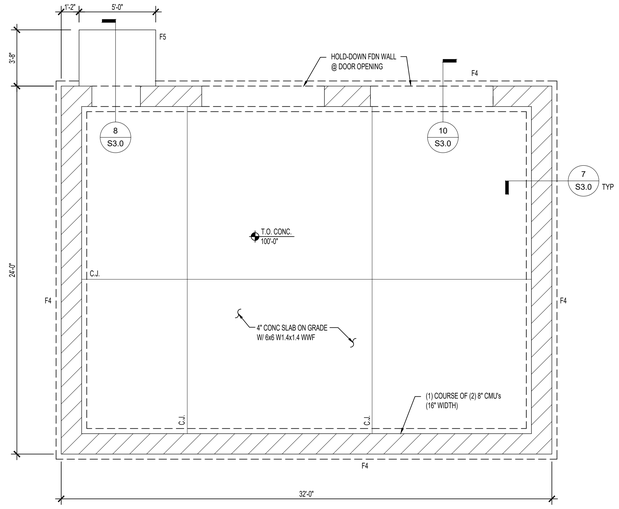
BUILDING "A" FOUNDATION PLAN

NORTH

SCALE 1/4" = 1'-0"

NOTES:
1. SEE ARCH. FOR EX. BUILDING DEMO PLAN.
2. SEE SHEET S1.0 FOR GENERAL NOTES
3. SEE SHEET S2.1 FOR FLOOR FRAMING PLAN

FOOTING SCHEDULE				
FOOTING MARK	FOOTING SIZE WIDTH x LENGTH x THICKNESS	REINFORCEMENT	TOP OF FTG. ELEV	REMARKS
F1	3'-6" x 3'-6" x 1'-0"	(4) #5 BARS EACH WAY	95'-3 3/4"	——
F2	3'-0" x 3'-0" x 1'-0"	(3) #5 BARS EACH WAY	95'-3 3/4"	——
F3	2'-4" x CONT x 1'-0"	(3) #5 BARS CONT.	95'-3 3/4"	——
F4	2'-0" x CONT x 36"±	(3) #5 BARS CONT. TOP AND BOTT	99'-4"	SEE SECTION 7/S3.0 TRENCH FTG
F5	5'-0"x3'-8"x42"	(2) #4 BARS CONT.	100'-0"	MASS POUR STOOP
F6	1'-4"x CONT x 12"	(2) #5 BARS CONT.	97'-4"	STOOP

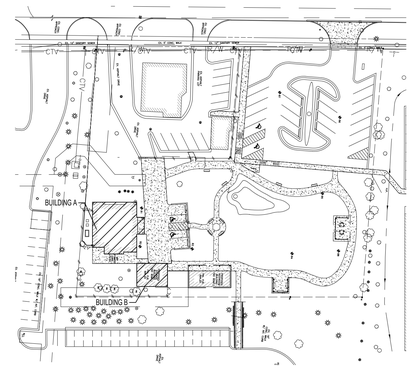


BUILDING "B" FOUNDATION PLAN

NORTH

SCALE 1/4" = 1'-0"

NOTES:
1. SEE ARCH. FOR EX. BUILDING DEMO PLAN
2. SEE SHEET S1.0 FOR GENERAL NOTES



KEY PLAN

NORTH

N.T.S

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FOUNDATION PLANS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐
DRAWN BY:	CAM
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JOB NO.: 161675

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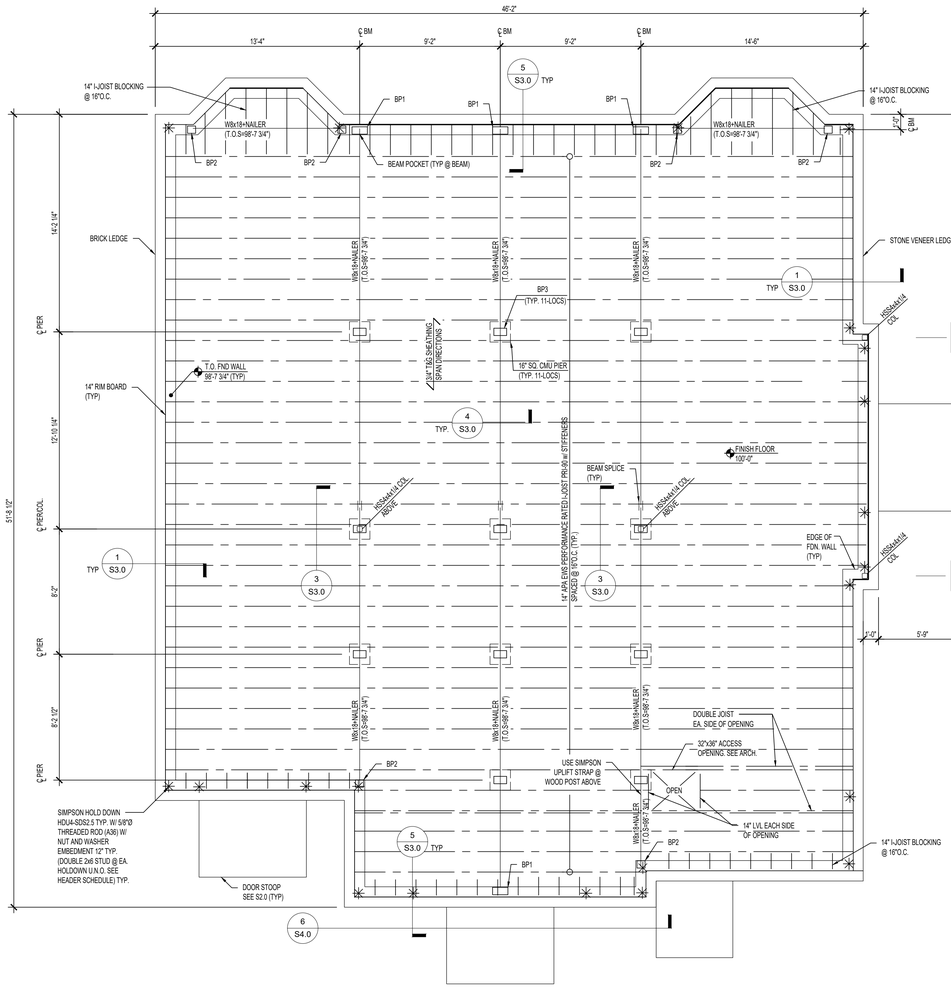


BUILDING "A" FLOOR FRAMING PLAN

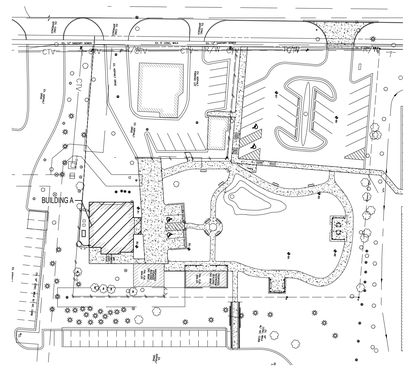
NORTH

SCALE 1/4" = 1'-0"

NOTE:
1. SEE ARCH. FOR EX. BUILDING DEMO PLAN
2. SEE SHEET S2.0 FOR ADDITION FOUNDATION INFORMATION AND BRG. PLATE SCHEDULE
3. SEE SHEET S1.0 FOR GENERAL NOTES
4. SEE SHEET S2.0 FOR FOR STOOP LOCATIONS

BEARING PLATE SCHEDULE

MARK	SIZE	ANCHORS	REMARKS
BP1	1/2"x 5 1/2"x12"	(2) 1/2"Øx 6" LG. HD. STUDS	———
BP2	1/2"x 5 1/2"x6"	(1) 1/2"Øx 6" LG. HD. STUDS	———
BP3	3/8"x 5 1/2"x8"	(2) 1/2"Øx 6" LG. HD. STUDS	———



KEY PLAN
NOT TO SCALE

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FLOOR FRAMING PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

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S2.1

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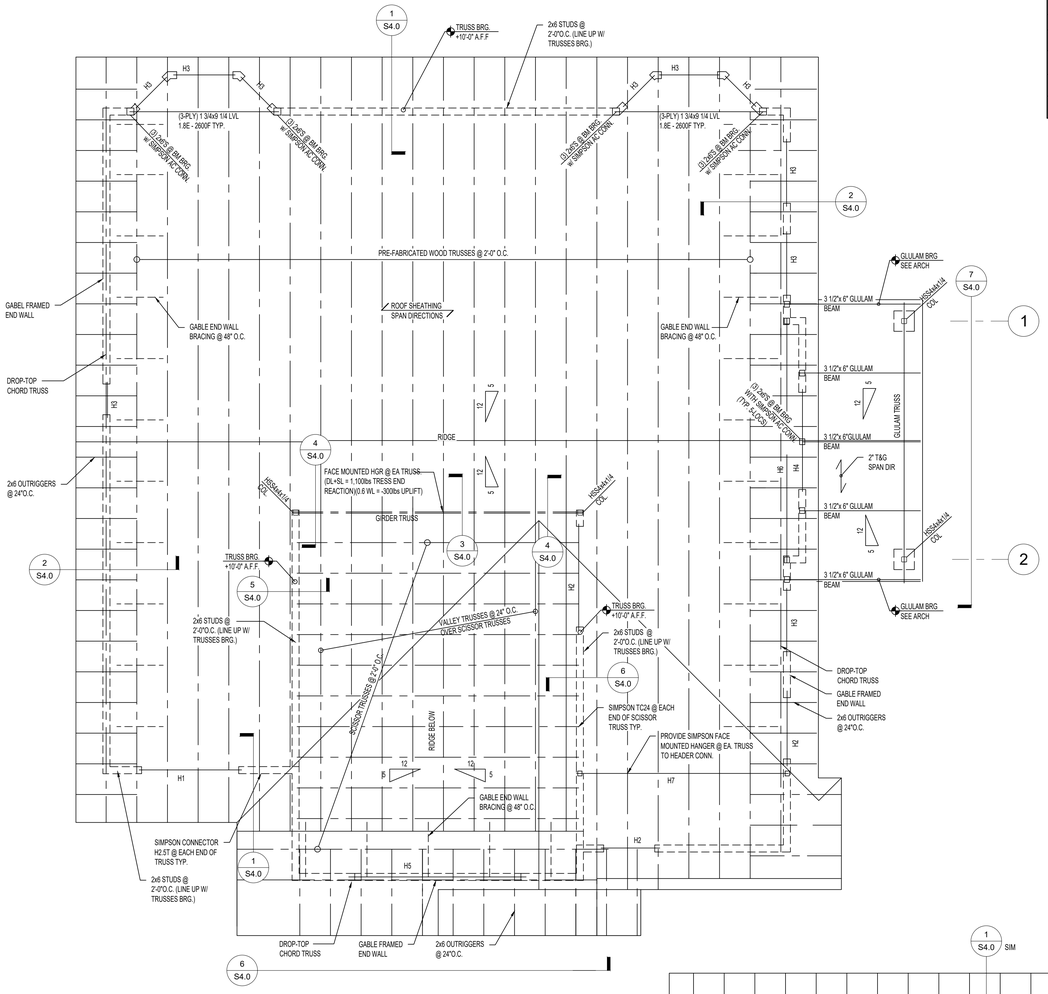
HEADER SCHEDULE				
MARK	SIZE	TRIMMER (JACK STUDS)	KING STUDS	REMARKS
H1	(3-PLY) 2x12	(2-PLY) 2x6	(2-PLY) 2x6	
H2	(2-PLY) 2x10	(2-PLY) 2x6	(2-PLY) 2x6	
H3	(2-PLY) 2x8	(1-PLY) 2x6	(2-PLY) 2x6	
H4	(3-PLY) 2x12	(3-PLY) 2x6	(2-PLY) 2x6	L4x4x3/8 VENEER SUPPORT (MIN. 8" BRG. EA. END)
H5	(3-PLY) 2x12	(2-PLY) 2x6	(2-PLY) 2x6	L6x4x3/8 (LLV) VENEER SUPPORT (MIN. 8" BRG. EA. END)
H6	(3-PLY) 1 3/4"X14" LVL	(2-PLY) 2x6	____	HOLDOWN @ EA. TRIMMER
H7	(2-PLY) 1 3/4"X11 1/2" LVL	(3-PLY) 2x6	____	HOLDOWN @ EA. TRIMMER

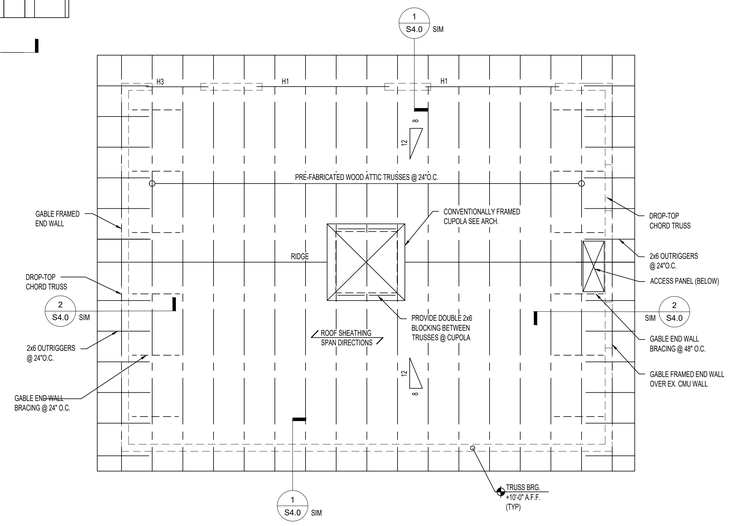


BUILDING "A" ROOF FRAMING PLAN

NORTH

SCALE 1/4" = 1'-0"

NOTE:
1. SEE ARCH. FOR EX. BUILDING DEMO PLAN
2. SEE SHEET S2.0 FOR BUILDING DIMESNINONS
3. SEE SHEET S1.0 FOR GENERAL NOTES

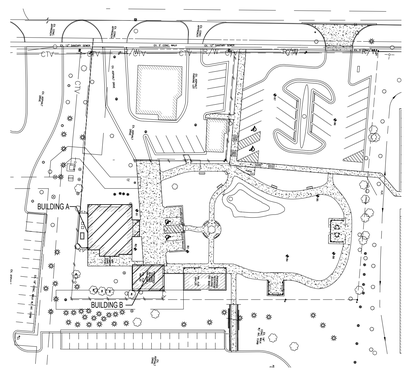


BUILDING "B" ROOF FRAMING PLAN

NORTH

SCALE 1/4" = 1'-0"

NOTE:
1. SEE ARCH. FOR EX. BUILDING DEMO PLAN
2. SEE SHEET S2.0 FOR BUILDING DIMESNINONS
3. SEE SHEET S1.0 FOR GENERAL NOTES
5. ATTIC TRUSS FLOOR DESIGN LL=80 PSF



KEY PLAN

NOT TO SCALE

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ROOF FRAMING PLANS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: CAM
CHECKED BY: JWQ

REVISIONS:
CONSTRUCTION SET 9/25/2018

DATE: 08/11/17

SHEET NO.:

S2.2

JOB NO.: 161675

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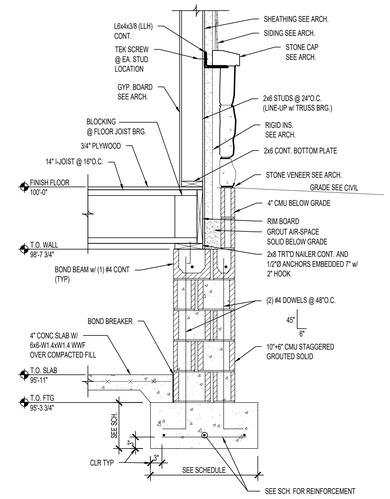
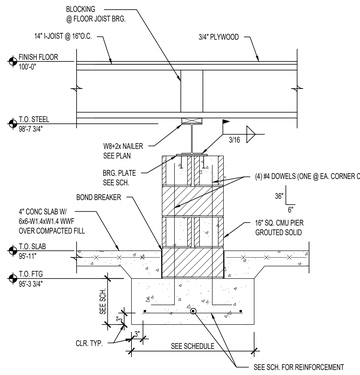


1 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"



2 S3.0 **SECTION**
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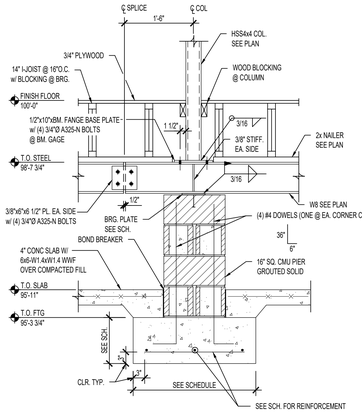
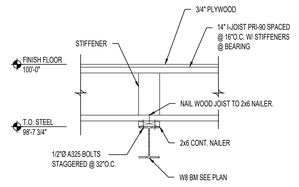
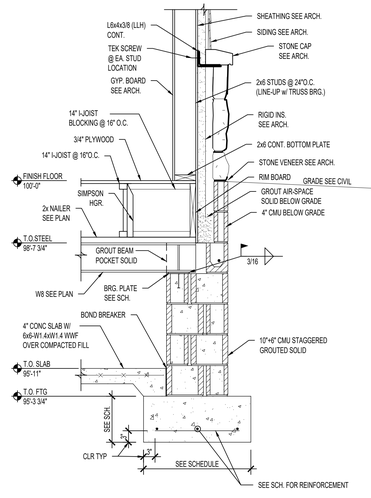


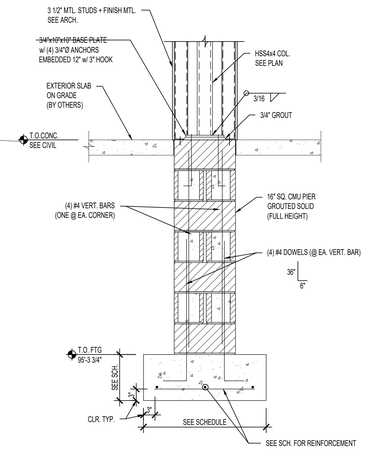
3 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"



4 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"

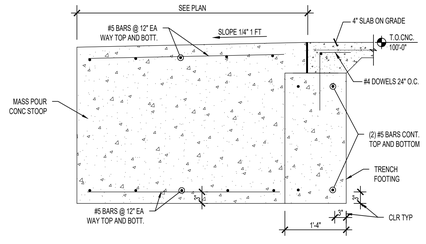


5 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"



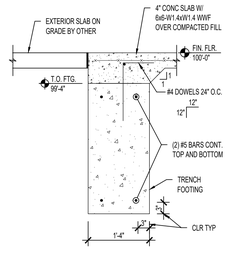
6 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"

7 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"



8 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"

9 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"



10 S3.0 **SECTION**
SCALE: 3/4" = 1'-0"

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DDA PLACEMAKING
DOWNTOWN DEVELOPMENT AUTHORITY
46425 TYLER RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SECTIONS AND DETAILS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: CAM
CHECKED BY: JWQ

REVISIONS:
CONSTRUCTION SET 9/25/2018

DATE: 08/11/17

SHEET NO.: S3.0

JOB NO.: 161675

SNYDER & STALEY ENGINEERING, P.L.C.
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3085 BAY ROAD SUITE 6
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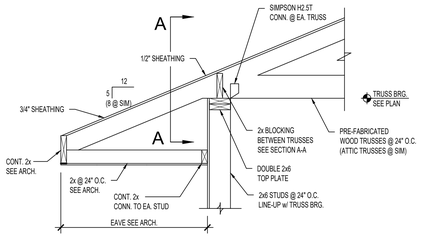
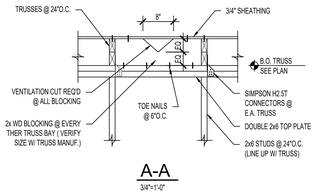
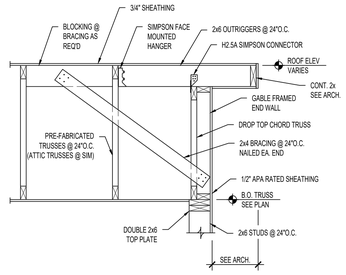
PROJECT NO. 16-828-288



1 S4.0 SECTION

SCALE: 3/4" = 1'-0"





2 S4.0 SECTION

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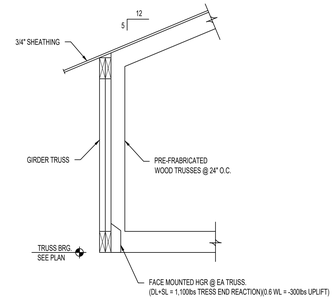

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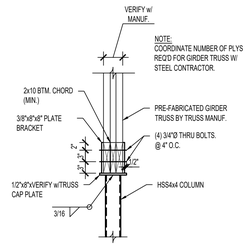

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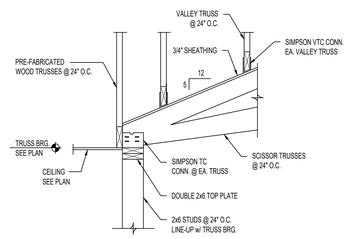

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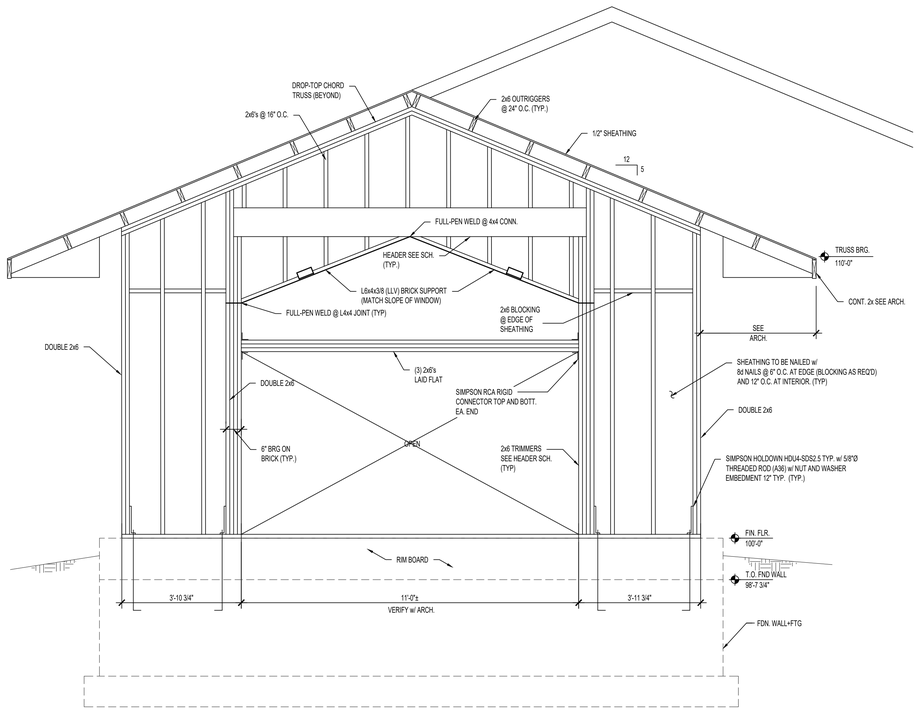
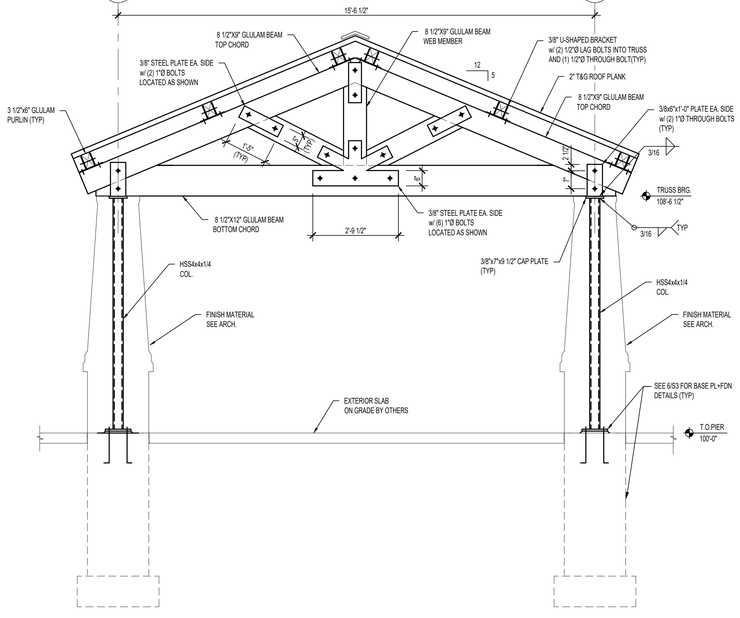
SCALE: 3/4" = 1'-0"



6 S4.0 SECTION

SCALE: 1/2" = 1'-0"



7 S4.0 SECTION

SCALE: 1/2" = 1'-0"

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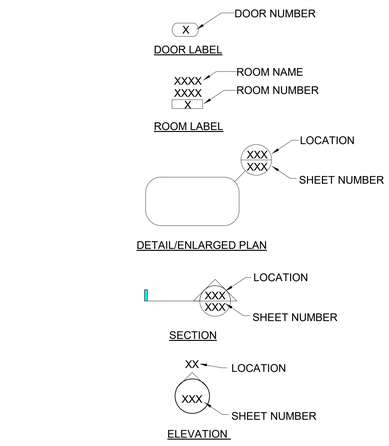
ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS USED. ABBREVIATIONS INCLUDE BUT NOT LIMITED TO THIS LIST.

A.F.F.	ABOVE FINISH FLOOR
ACCOM	ACCOMMODATE
ACCORD	ACCORDANCE
A.C.P.	ACOUSTICAL PANEL
ACOUS	ACOUSTICAL
AD	ACCESS DOOR
ALT	ALTERNATE
ALUM.	ALUMINUM
ARCH	ARCHITECT
@	AT
BRG	BEARING
B PL	BEARING PLATE
BIT	BITUMINOUS
BLK	BLOCK
BRD	BOARD
BOTT	BOTTOM
BRKT	BRACKET
BLDG	BUILDINGS
CAB	CABINET
CLG.	CEILING
CL	CENTER LINE
CIRC	CIRCULATION
CLO	CLOSET
COL	COLUMN
COMP	COMPUTER
CONC.	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONF.	CONFERENCE
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CR	COAT RACK
CRS	COURSES
DEMO	DEMOLISH, DEMOLITION
DIA	DIAMETER
DIM	DIMENSION
DIV	DIVISION
DR	DOOR
DN	DOWN
DS	DOWN SPOUT
ELEC.	ELECTRICAL
EWC	ELECTRICAL WATER COOLER
EC	ELECTRICAL CONTRACTOR
ELEV.	ELEVATION, ELEVATOR
ENG	ENGINEER
EQ	EQUAL
EXIST.	EXISTING
EXP	EXPANSION, EXPOSED
EJ	EXPANSION JOINT
EXT	EXTERIOR
EF	EXHAUST FAN
FWC	FABRIC WALL COVERING
F.V.	FIELD VERIFY
F.R.P.	FIBERGLASS REINFORCED PANEL
FIN	FINISH
FF	FINISHED FLOOR
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FLR	FLOOR
FD	FLOOR DRAIN
FTG	FOOTING
GA	GAGE, GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GWB	GYPSUM DRYWALL (WALLBOARD)
GWB-X	GWB TYPE-X (FIRE RESISTIVE CLASSIFICATION)
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HT.	HEIGHT
H.M.	HOLLOW METAL STEEL
HOR	HORIZONTAL
ID	INSIDE DIAMETER
INS	INCHES
JT	JOINT
JST	JOIST
KSF	KIPS PER SQUARE FOOT
LAM.	LAMINATE
LIN FT	LINEAR FOOT
LLV	LONG LEG VERTICAL
LAV	LAVATORY
LH	LEFT HAND
LHR	LEFT HAND REVERSE
MFR	MANUFACTURER
MAX	MAXIMUM
MECH.	MECHANICAL
MC	MECHANICAL CONTRACT (OR)
M.P.E.	MECHANICAL, PLUMBING,
MET	ELECTRICAL
MIN	METAL
MISC.	MINIMUM
N/A	MISCELLANEOUS
NIC	NOT APPLICABLE
NTS	NOT IN CONTRACT
NRC	NOT TO SCALE
NO OR #	NOISE REDUCTION COEFFICIENT
OC	NUMBER
OPP.	ON CENTER
OD	OPPOSITE
OH	OUTSIDE DIAMETER
PLAS.	OVERHEAD
PL	PLASTIC
PLYWD	PLATE
PO	PLYWOOD
PSI	POLYETHYLENE
PSF	POUNDS PER SQ. INCH
PVC	POUNDS PER SQ. FOOT
RWC	POLYVINYL CHLORIDE
RECPT	RAIN WATER CONDUCTOR
REC	RECEPTION
REF.	RECESSED
REINF	REFLECTED
RE-BAR	REINFORCING
REP	REINFORCING BARS
REQ	REPRESENTATIVE
RF	REQUIRED
RFM	ROOF FAN
RH	RECESSED FLOOR MAT
RHR	RIGHT HAND
ROW	RIGHT HAND REVERSE
RD	RIGHT OF WAY
RM	ROOF DRAIN
RO	ROOM
SCHED.	ROUGH OPENING
SIM.	SCHEDULE
SPEC	SIMILAR
SPKLR	SPECIFICATION
SS	SPRINKLER
STD	STAINLESS STEEL
STL	STANDARD
STL JST	STEEL
STL STD	STEEL JOIST
STOR	STEEL STUD
STRUCT.	STORAGE
STR STL	STRUCTURE
SUSP.	STRUCTURAL STEEL
SYS	SUSPENDED
TEL	SYSTEM
TEMP.	TELEPHONE
T	TEMPERED
T & G	TEMPERED GLAZED
TOC	TONGUE AND GROOVE
TOF	TOP OF CURB
TOS	TOP OF FOOTER
TOW	TOP OF STEEL
TOM	TOP OF WALL
TYP.	TOP OF MASONRY
UNO	TYPICAL
UR	UNLESS NOTED OTHERWISE
VB	URINAL
VIF	VAPOR BARRIER
VERT	VERIFY IN FIELD
VCT	VERTICAL
VWB	VINYL COMPOSITE TILE
VWC	VINYL WALL BASE
WAIT	VINYL WALL COVERING
WC	WAITING
WT	WATER CLOSET
WWF	WEIGHT
W/	WELDED WIRE FABRIC
W/O	WITH
WD.	WITH OUT
'	WOOD
"	FOOT, FEET
#	INCH, INCHES POUNDS

SYMBOL KEY



GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES AND INSPECTIONS.
2. ALL CONTRACTORS SHALL COORDINATE THE LOCATION OF DUCTS, PIPING, BOXES, CHASES, CONDUITS, ETC... WITH THE MECHANICAL, ELECTRICAL AND ALL OTHER TRADES.
3. PITCH ALL GRADES AND EXTERIOR SLABS AWAY FROM BUILDING TOWARDS DRAINAGE.
4. SEAL/MORTAR ALL OPENINGS AROUND PIPES, CONDUITS, ETC.... WHICH PASS THROUGH FLOORS AND WALLS.
5. CAULK ALL JOINTS BETWEEN DOOR FRAMES, WINDOW FRAMES, MASONRY WALLS AND ALL DISSIMILAR MATERIALS.
6. PROVIDE ALL NECESSARY BLOCKING AS REQUIRED TO SUPPORT LIGHTING, SIGNS, BRACKETS, ACCESSORIES, ETC....
7. ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD OR FACE OF BLOCK TO FACE OF BLOCK.
8. ALL ITEMS NOTED "BY OWNER" OR "N.I.C." ARE NOT IN CONTRACT.
9. ALL BLOCK CORNERS SHALL BE BULLNOSE.
10. CONTRACTOR TO INSTALL ONLY TYPE "X" FIRECODE GYPSUM BOARD BOTH SIDES OF STUD WALL FULL HEIGHT OF PARTITION TO UNDERSIDE OF STRUCTURE (TIGHT) AT RATED WALLS IE. STORAGE ROOM AND ELEC. / MECHANICAL.
11. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS PROPOSED ON THE JOB. REPORT ALL DEVIATIONS FROM DRAWINGS PRIOR TO START OF CONSTRUCTION.
12. ALL CONTRACTORS SHALL CONSTRUCT THIS PROJECT IN ACCORDANCE WITH ALL STATE, FEDERAL AND LOCAL CODES.
13. ALL CONTRACTORS SHALL REPAIR ANY DAMAGES OR DISTURBANCES TO THE EXISTING BUILDING AND SITE. PATCH / REPAIR AND PAINT ANY WALLS DISTURBED FROM DEMOLITION.
14. ALL WOOD AND MISC. BLOCKING MUST BE NON-COMBUSTIBLE MATERIAL.
15. ALL INTERIOR CONTROL JOINTS SHALL BE CONSTRUCTED AT 20'-0" O.C. MAXIMUM UNLESS NOTED OTHERWISE.
16. ALL MATERIALS USED ARE REQUIRED TO BE OF GOOD QUALITY AND MEET OR EXCEED ALL APPLICABLE INDUSTRY STANDARDS.
17. ALL WORK IS TO BE DONE WITH THE APPROPRIATE TOOLS AND MATERIALS. THE ARCHITECT HAS THE RIGHT TO REJECT ANY WORK NOT DONE APPROPRIATELY.
18. REMOVE ALL TRASH AND DEBRIS FROM THE SITE. WASH ALL SURFACES DUST AND SWEEP TO REMOVE ALL DIRT. REMOVE ALL TEMPORARY LABELS.
19. ALL CONTRACTORS AND SUBCONTRACTORS SHALL PROVIDE ALL WORK SHOWN IN ANY PART OF THE DOCUMENTS, I.E. HAND DRYER SHOWN ON ARCHITECTURAL DRAWINGS MUST BE WIRED BY THE ELECTRICIAN WHETHER IT IS OR IS NOT SHOWN ON THE ELECTRICAL DRAWINGS.
20. THE GENERAL CONTRACTOR SHALL PROVIDE A MIN. 1 YEAR (U.N.O.) WARRANTY ON ALL MATERIAL, EQUIPMENT AND WORK PERFORMED.

2015 MICHIGAN BUILDING CODE

USE GROUP (SECTION 302)
'B' BUSINESS
'UTILITY' (BUILDING B)
SPRINKLED - NOT PROVIDED

TYPE OF CONSTRUCTION (SECTION 601)
TYPE 5-B UNPROTECTED

BUILDING AREA (503)
PROPOSED AREA

DDA FACILITY BUILDING 'A'	2,328 S.F.
STORAGE BUILDING 'B'	768 S.F.
TOTAL	**3,096 S.F.**

BUILDING HEIGHT (TABLE 504.3, 504.4)
ALLOWABLE HEIGHT
'B' BUSINESS — 2 STORY, 40 FEET

PROPOSED BUILDING HEIGHT
'B' BUSINESS — 1 STORY, 19'-9" FEET

LIFE SAFETY SYSTEMS:

EMERGENCY LIGHTING & EXIT SIGN -	REQUIRED, PROVIDED
FIRE ALARMS -	REQUIRED, PROVIDED
SMOKE DETECTION SYSTEMS -	REQUIRED, PROVIDED
PANIC HARDWARE -	REQUIRED, PROVIDED
FIRE SUPPRESSION SYSTEM -	NOT REQ'D, NOT PROVIDED
STANDPIPE SYSTEM -	NOT REQ'D, NOT PROVIDED

OCCUPANT LOAD (TABLE 1004.1.2)
BUSINESS AREA
2,328 S.F. / 100 S.F. PER OCCUPANT= 23 OCCUPANTS

2015 MICHIGAN BUILDING CODE

REQUIRED PLUMBING FIXTURES (SECTION 403.1)

	REQ'D MALE	REQ'D FEMALE	PROVIDED
BUSINESS AREA-BUILDING 'A'			
WATERCLOSETS (1/25 MALE)	1	-	1
WATERCLOSETS (1/25 FEMALE)		1	1
LAVS			
(1/200 MALES AND FEMALE)	1	1	1 EACH
DRINKING FOUNTAINS (1 PER 100)			1

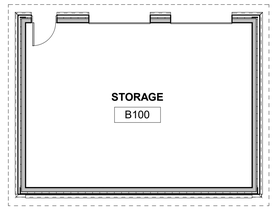
NUMBER OF EXISTS
REQUIRED (TABLE 1015.1.1) -
OCCUPANT LOAD > 1000 - 1 REQUIRED, 1 PROVIDED

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601 AND 403.2.1, EXCEPTIONS)
PARTY/FIREWALLS: (FIRE SEPERATION DISTANCE > 30 FEET)

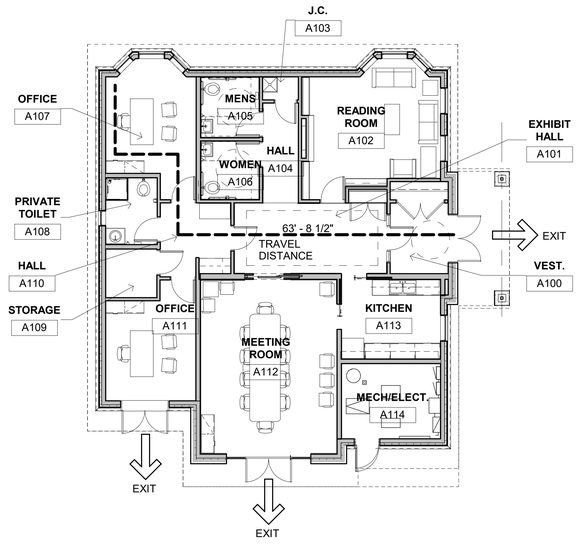
EXTERIOR BEARING WALLS -	0
EXTERIOR NON-BEARING WALLS -	0
INTERIOR WALLS	
BEARING -	0
NON-BEARING -	0
TENANT SEPERATION (OFFICES)	N/A
FIRE SEPERATION ASSEMBLIES	
EXIT ENCLOSURES (1022.2) -	0
CEILING - FLOOR ASSEMBLY -	0
BEAMS -	0
COLUMNS -	0
CEILING - ROOF ASSEMBLY -	0 IF GREATER THAN 20 FEET

EXIT REQUIREMENTS

DEAD END LIMIT - MAXIMUM CONDITION (1018.4)	
ALLOWABLE -	20 FEET
ACTUAL -	> 20 FEET
TRAVEL DISTANCE TO EXIT (TABLE 1017.2)	
ALLOWABLE -	200 FEET
ACTUAL -	63'-8 1/2"



N 2 A0.1 LIFE SAFETY PLAN - BUILDING B
1/8" = 1'-0"



N 1 A0.1 LIFE SAFETY PLAN - BUILDING A
1/8" = 1'-0"

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GENERAL NOTES

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 05/25/17

SHEET NO.:
A0.1

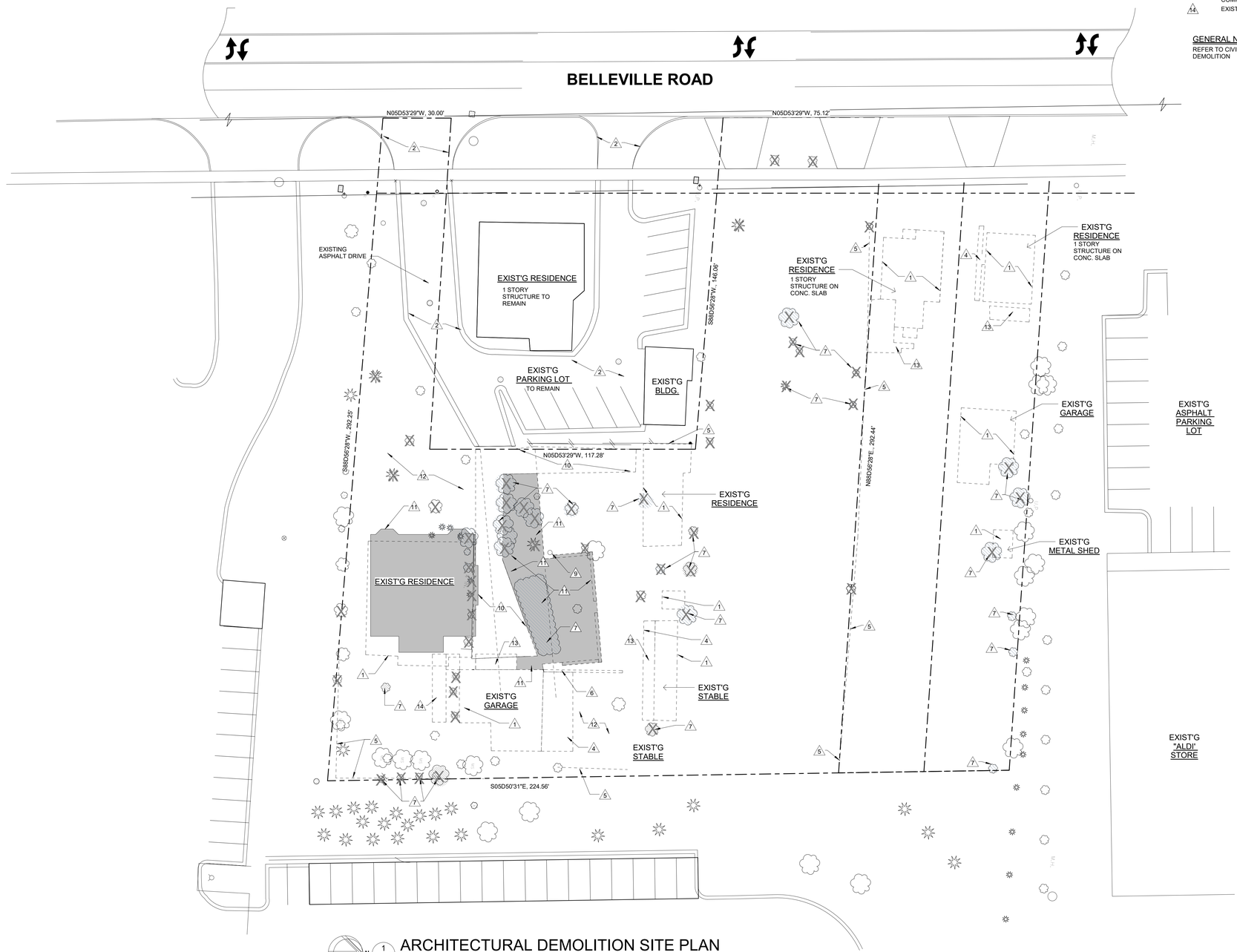
JOB NO.: 161675

SITE DEMOLITION KEYNOTES

1. EXISTING 1 STORY STRUCTURE (AS SHOWN DASHED) TO BE REMOVED COMPLETE. DEMOLITION TO INCLUDE,BUT NOT LIMITED TO, FOUNDATION, SLAB, ALL WALLS, DOORS, ROOF, STRUCTURE, ETC.
2. EXISTING APHALT DRIVE TO REMAIN.
3. REMOVE EXISTING 8'-0" x 10'-0" ALUM. SHED, FOUNDATION AND SLAB (AS SHOWN DASHED) COMPLETE.
4. REMOVE EXISTING CONCRETE WALK COMPLETE FOR NEW GRASS/LANDSCAPE AREA. REFER TO ARCHITECTURAL SITE AND LANDSCAPE PLANS.
5. REMOVE EXISTING FENCE COMPLETE.
6. REMOVE EXISTING 3'-0" H. WALL AND FOUNDATION COMPLETE.
7. REMOVE EXISTING TREES/PLANTINGS COMPLETE AS SHOWN HATCHED.
8. NOT USED
9. EXISTING 2'-0" H. WOOD POST AND RAIL TO BE REMOVED COMPLETE.
10. REMOVE EXISTING GRAVEL DRIVE COMPLETE. PREP FOR NEW CONCRETE DRIVE.
11. EXISTING GRASS/TOPSOIL TO BE REMOVED FOR NEW DRIVE AND/OR BUILDING AS SHOWN SHADED. REFER TO ARCHITECTURE SITE PLAN.
12. EXISTING GRASS TO REMAIN.
13. EXISTING CONC. WALK/APRON TO BE REMOVED COMPLETE.
14. EXISTING BRICK PAVERS TO BE REMOVED COMPLETE.

GENERAL NOTE:

REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR TREE DEMOLITION



N 1 AS1.0 ARCHITECTURAL DEMOLITION SITE PLAN
1" = 20'-0"

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SITE DEMOLITION

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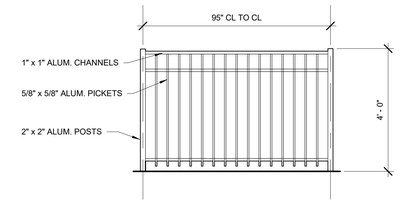
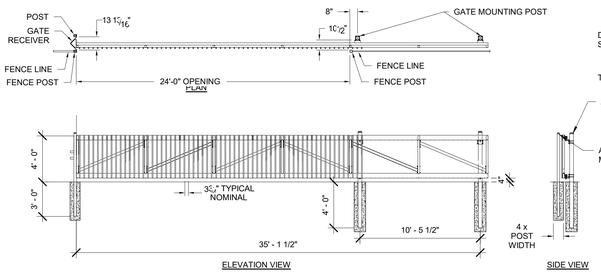
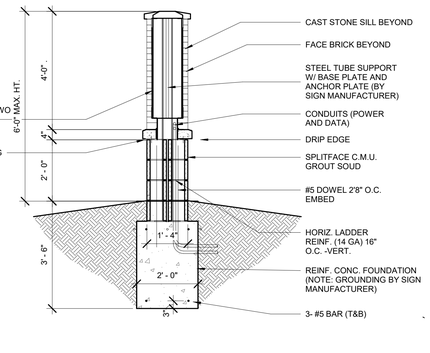


5 AS1.1 **ALUM. FENCE DETAIL**
1/2" = 1'-0"

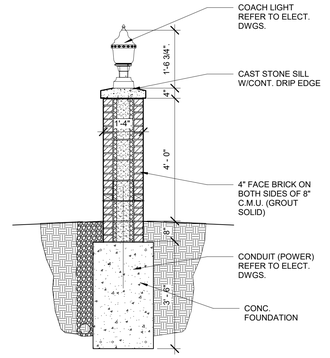


8 AS1.1 **ALUM. GATE DETAIL**
3/16" = 1'-0"

GATE TO BE KEPT OPEN DURING BUSINESS HOURS



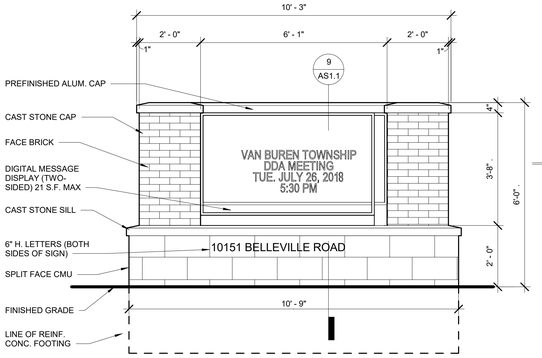
9 AS1.1 **SITE SIGN SECTION**
1/2" = 1'-0"



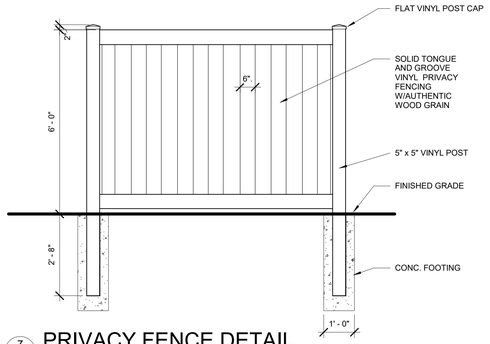
10 AS1.1 **SECTION DETAIL**
1/2" = 1'-0"

GENERAL NOTES

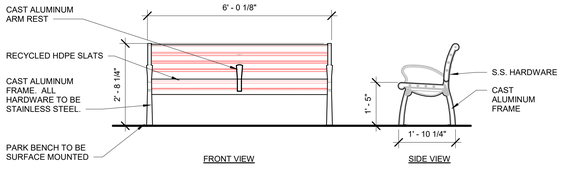
1. PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES AND SURFACES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED.
2. PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION.
3. ALL PARKING SPACES SHALL BE CLEARLY STRIPED WITH (4) FOUR INCH WIDE DOUBLE LINES, (24") TWENTY-FOUR INCHES APART AS PER THE ORDINANCE REQUIREMENTS.
4. A SHARED PARKING AGREEMENT EXISTING BETWEEN THE PROPERTY OWNER AND THE REAL ESTATE OFFICE FOR SPECIAL EVENTS ON THE PROPERTY.
5. TRASH RECEPTACLES WILL BE STORED IN GARAGE BUILDING 'B' AND/OR BUILDING 'C'
6. OWNER AGREES TO SEASONAL MAINTENANCE PROGRAM AND WILL REPLACE ALL DISEASED, DEAD OR DAMAGED PLANTS, REPLENISH MULCH, CONTROL WEEDS, FERTILIZE AND PRUNE BEGINNING UPON COMPLETION OF CONSTRUCTION OF LANDSCAPING.
7. OWNER AGREES TO COMBINE ALL PARCELS INTO ONE ONCE EXISTING BUILDINGS ARE REMOVED.
8. OWNER OF 10145 BELLEVILLE ROAD HAS AGREED TO ALLOW SOUTHERLY SPACE BETWEEN THE BUILDING TO BE REMARKED FOR HANDICAPPED PARKING AS PART OF SHARED PARKING AGREEMENT.



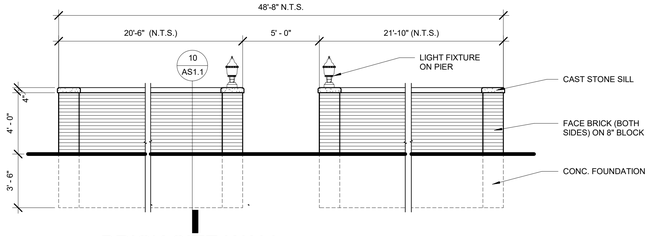
6 AS1.1 **SITE SIGN ELEVATION**
1/2" = 1'-0"



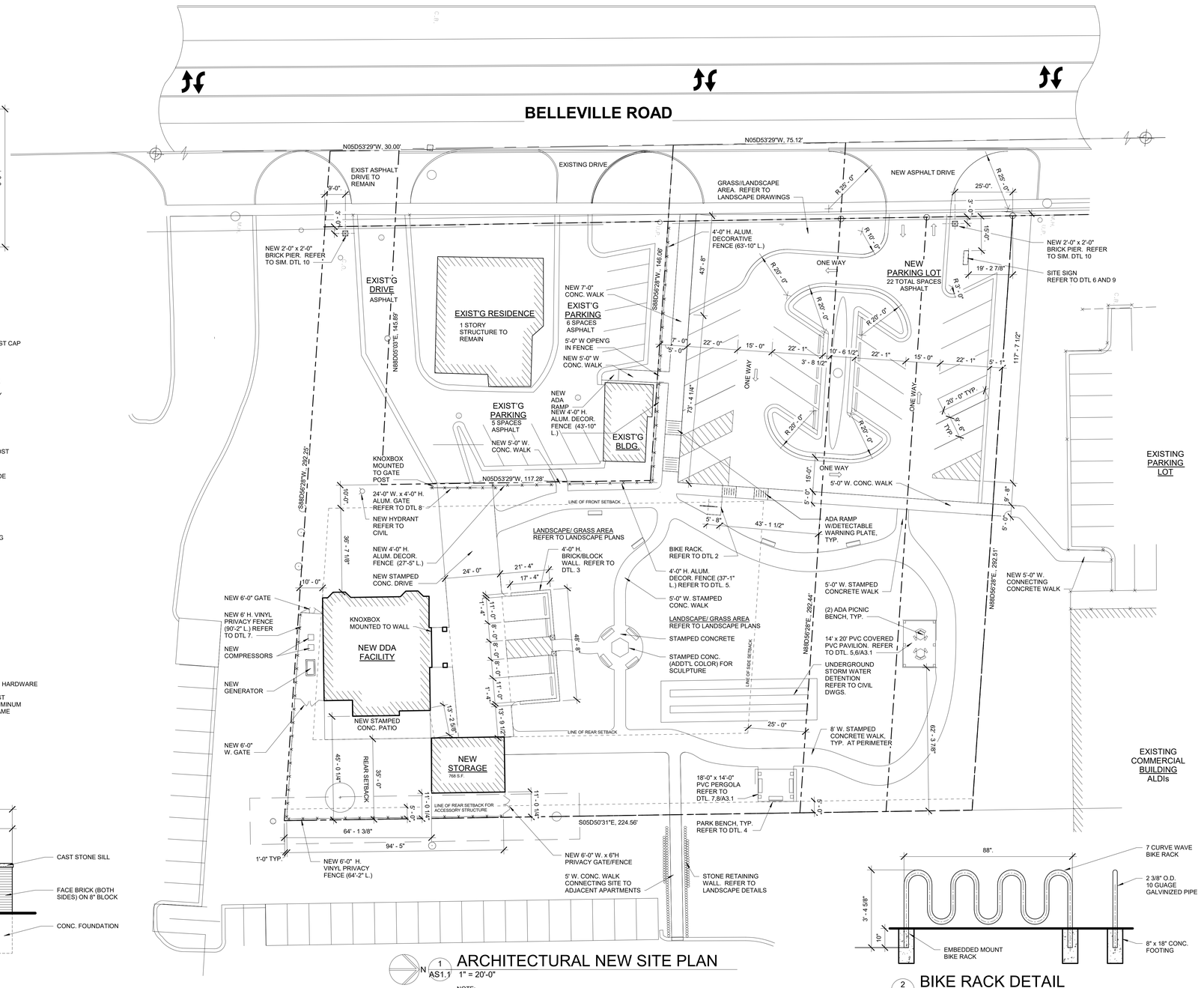
7 AS1.1 **PRIVACY FENCE DETAIL**
1/2" = 1'-0"



4 AS1.1 **PARK BENCH DETAIL**
1/2" = 1'-0"



3 AS1.1 **BRICK SITE WALL**
1/4" = 1'-0"



N 1 AS1.1 **ARCHITECTURAL NEW SITE PLAN**
1" = 20'-0"

NOTE:
ALL CONCRETE WALKS SHALL BE COLORED STAMPED CONCRETE WITH THE EXCEPTION OF THE CURBS AND APPROACH ONTO BELLEVILLE ROAD.

2 AS1.1 **BIKE RACK DETAIL**
1/2" = 1'-0"

WA
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VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

SITE PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

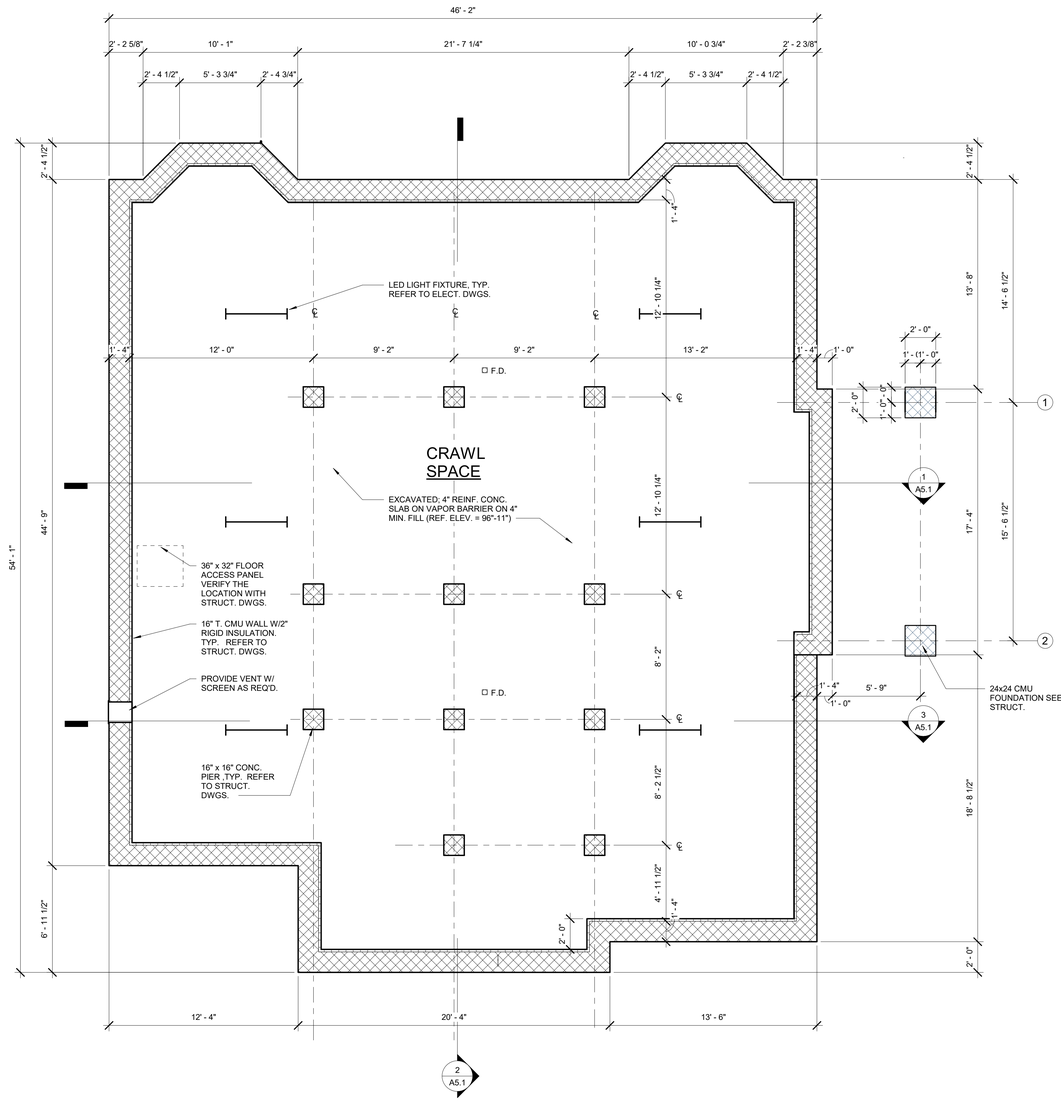
DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 05/10/17

SHEET NO.:
AS1.1

JOB NO.: 161675



N 1 A1.0 CRAWL SPACE FLOOR PLAN
1/4" = 1'-0"

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CRAWL SPACE FLOOR PLAN

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY:	KAN
CHECKED BY:	BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 08/14/17

SHEET NO.:
A1.0

JOB NO.: 161675

WALL PARTITION LEGEND

	DESCRIPTION
A	5" NOM., 4 3/4" ACTUAL 1 LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 2 x 4 WOOD FRAMING AT 16" O.C. MIN.
B	5" NOM., 4 3/4" ACTUAL 5/8" CEMENT BOARD (ON ONE SIDE) ON 2 x 4 WOOD FRAMING AT 16" O.C. MIN. WITH 5/8" GYP. BOARD
C	7" NOM., 6 3/4" ACTUAL 1 LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 2 x 6 WOOD FRAMING WITH BATT SOUND INSULATION AT 16" O.C. MIN.
D	9" NOM. 8 3/4" ACTUAL 1 LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 2 x8 WOOD FRAMING WITH BATT SOUND INSULATION AT 16" O.C. MIN.
E	7" NOM., 6 3/4" ACTUAL 5/8" CEMENT BOARD ON ONE SIDE OF 2 x 6 WOOD FRAMING WITH BATT SOUND INSULATION AT 16" O.C. MIN. ON 5/8" GYP. BOARD
F	5" NOM., 4 3/4" ACTUAL 5/8" CEMENT BOARD ON BOTH SIDES OF 2 x 4 WOOD FRAMING AT 16" O.C. MIN.
J	8" NOM., 7 5/8" ACTUAL MASONRY CONCRETE BLOCK WITH LOOSE FILL INSULATION
K	6" NOM., 5 5/8" ACTUAL MASONRY CONCRETE BLOCK

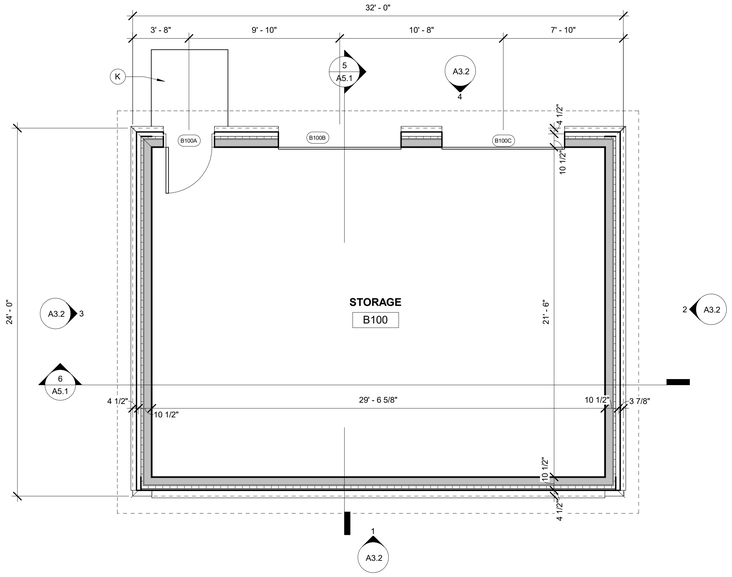
NOTE:
1. REFER TO INTERIOR ELEVATIONS AND ROOM FINISH SCHEDULE FOR WALL FINISHES.
2. DIMENSIONS ARE TO THE FACE OF THE GYPSUM BOARD.
3. 5/8" CEMENT BOARD TO BE USED ON ALL TILE WALLS.

NEW WORK KEYNOTES

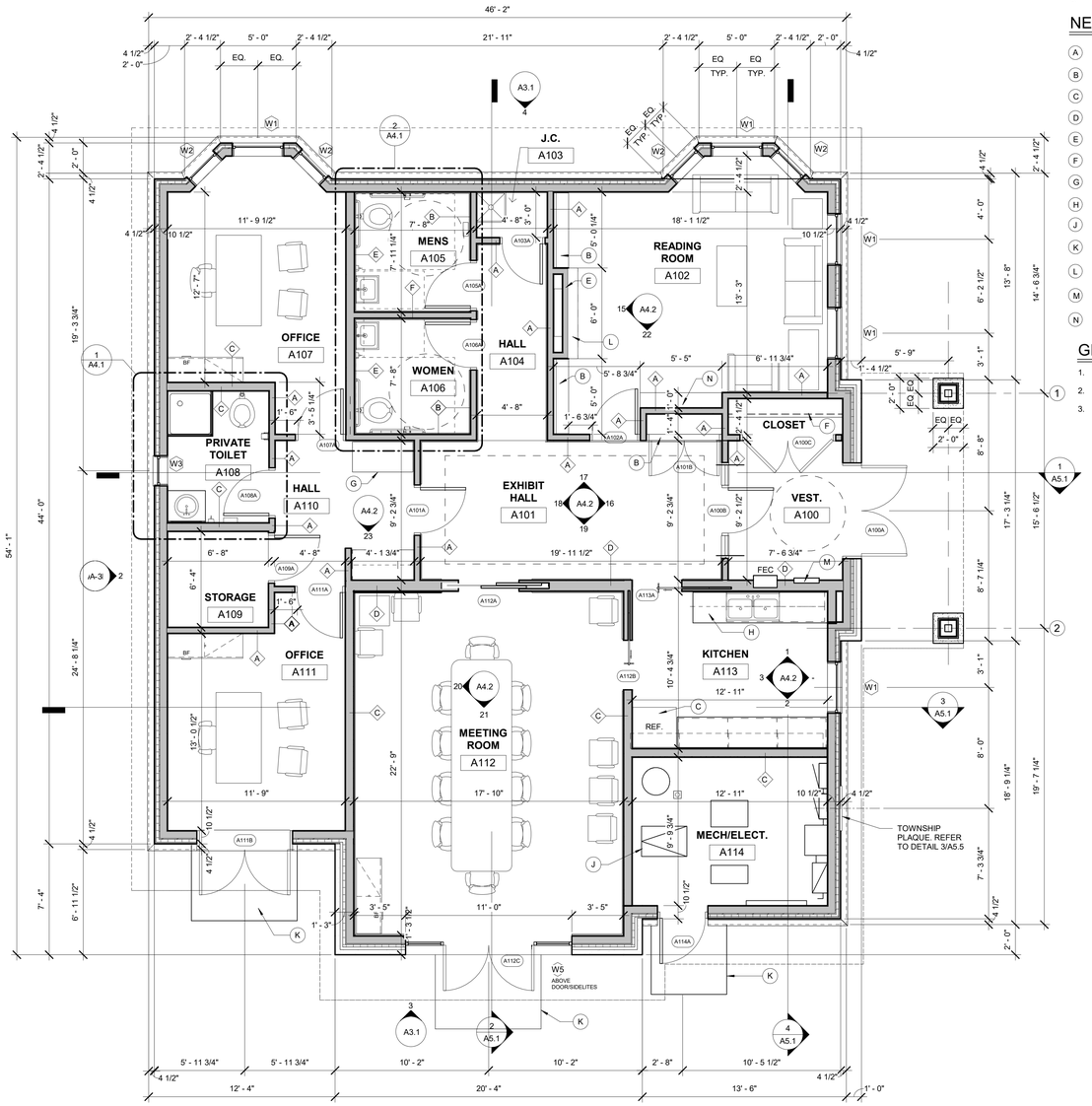
- (A) FURNITURE BY OWNER
- (B) DISPLAY CASE. REFER TO DETAILS.
- (C) REFRIGERATOR BY OWNER
- (D) 36" H. TILE BEHIND AND ON SIDE WALL AT THE JANITOR CLOSET SINK.
- (E) ELECTRIC FIREPLACE. REFER TO SPEC.
- (F) SHELF AND COAT RACK. REFER TO DETAILS.
- (G) PRINTER BY OWNER.
- (H) DISHWASHER BY OWNER.
- (J) CRAWL SPACE ACCESS HATCH
- (K) CONCRETE SUPPORT HATCH. REFER TO STRUCT.
- (L) 12 x 12 PORCELAIN TILE HEARTH
- (M) ELECTRICAL CABINET HEATER UNIT. REFER TO MECH/ELECT. DRAWING.
- (N) SHELVING UNIT. REFER TO INTERIOR ELEVATIONS.

GENERAL NOTES

1. ALL FURNITURE SHOWN ON THE DRAWINGS IS BY THE OWNER UNLESS OTHERWISE NOTED.
2. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LAYOUT OF EQUIPMENT IN HVAC ROOM 114.
3. REFER TO MECHANICAL DRAWINGS FOR SUPPLY AND RETURN DIFFUSERS.



N 3 A1.1 FLOOR PLAN - BUILDING B
1/4" = 1'-0"



N 1 A1.1 FIRST FLOOR PLAN NEW WORK - BUILDING A
1/4" = 1'-0"

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FLOOR PLANS - NEW WORK

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

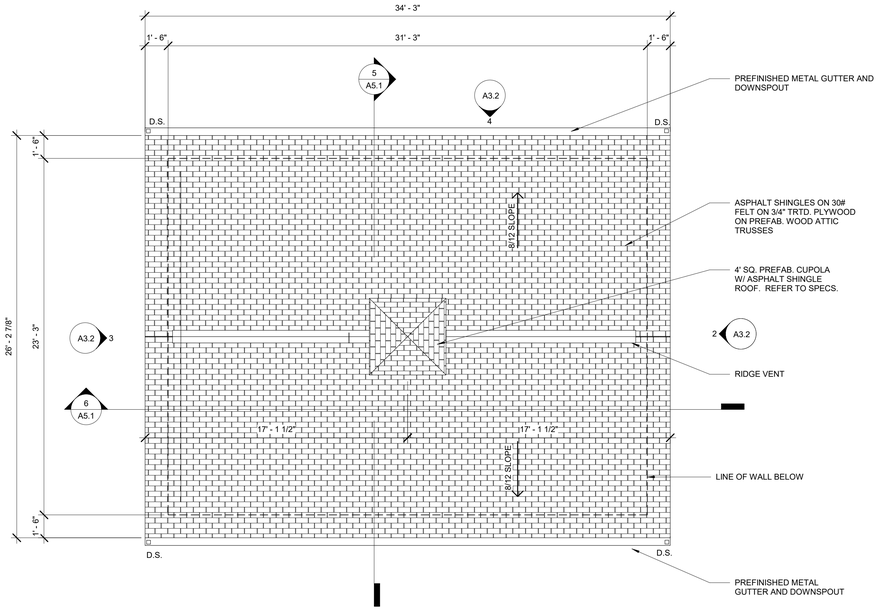
DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

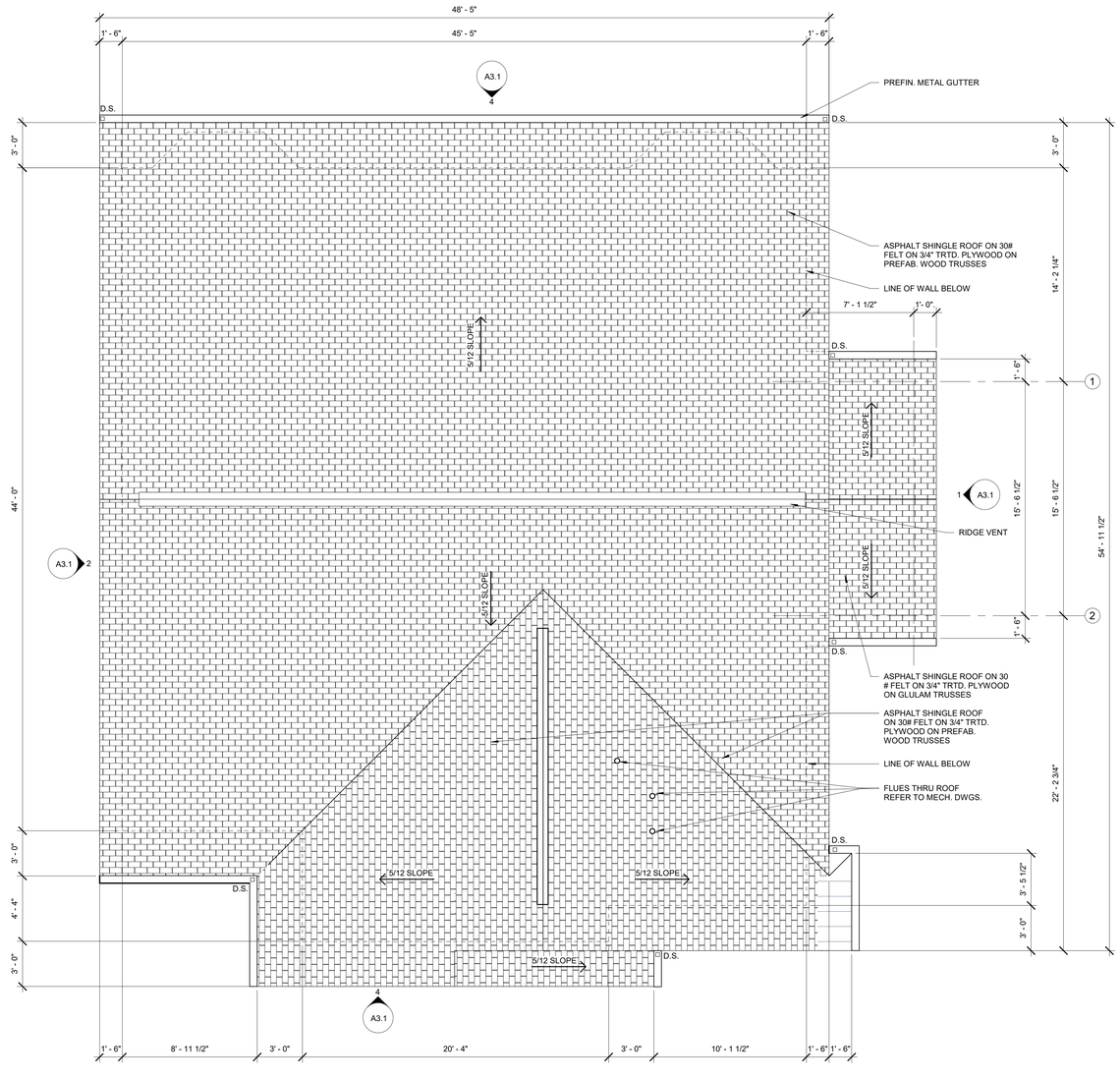
DATE: 05/10/17

SHEET NO.:
A1.1

JOB NO.: 161675



N 2 A1.2 ROOF PLAN - BUILDING B
1/4" = 1'-0"



N 1 A1.2 FIRST FLOOR PLAN - BUILDING A
1/4" = 1'-0"

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ROOF PLANS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 05/25/17

SHEET NO.:
A1.2

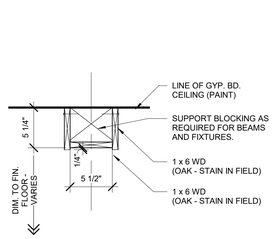
JOB NO.: 161675

GENERAL CEILING NOTES:

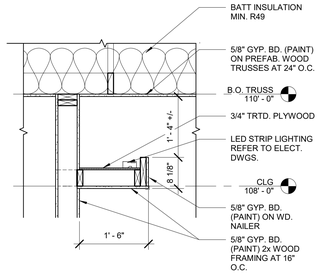
1. REFER TO ELECTRICAL DRAWING FOR LIGHT FIXTURE TYPE, LAYOUT AND QUANTITY.
2. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR DIFFUSER AND GRILLES LOCATION AND SIZES.
3. REFER TO FINISH ROOM SCHEDULE FOR CEILING HEIGHTS.

REFLECTED CEILING LEGEND:

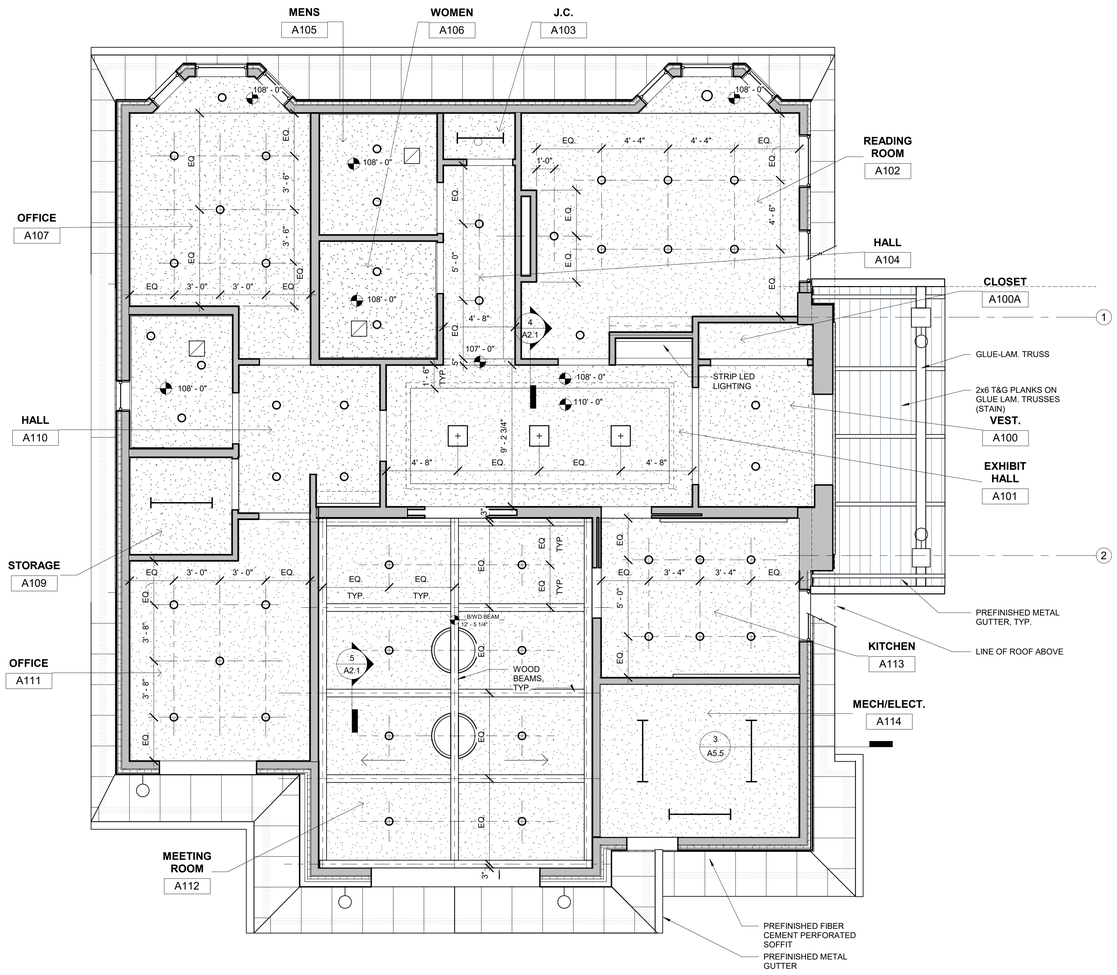
SYMBOL:	DESCRIPTION:
	NEW PAINTED GYPSUM BOARD CEILING
	LINEAR LIGHT FIXTURE
	DOWNLIGHT
	36" DIA. DRUM PENDANT
	EXT. COACH LIGHTING
	EXHAUST FAN
	LED LANTERN LIGHT FIXTURE

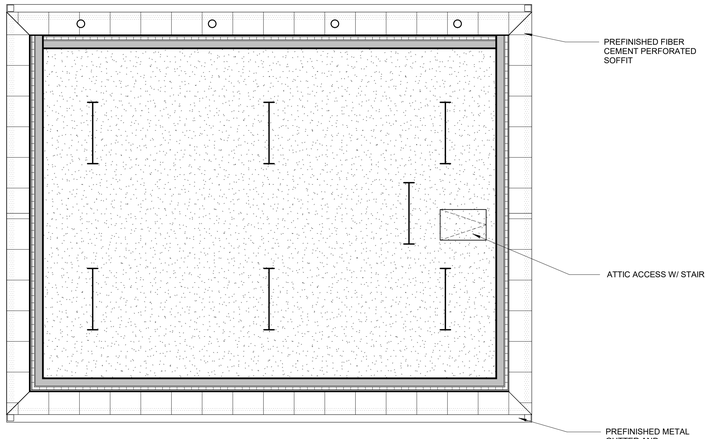


5 A2.1 SECTION DETAIL
1 1/2" = 1'-0"



4 A2.1 SECTION DETAIL
3/4" = 1'-0"





N 1 A2.1 REFLECTED CEILING PLAN - BUILDING B
1/4" = 1'-0"

N 2 A2.1 REFLECTED CEILING PLAN - BUILDING A
1/4" = 1'-0"

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REFLECTED CEILING PLANS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

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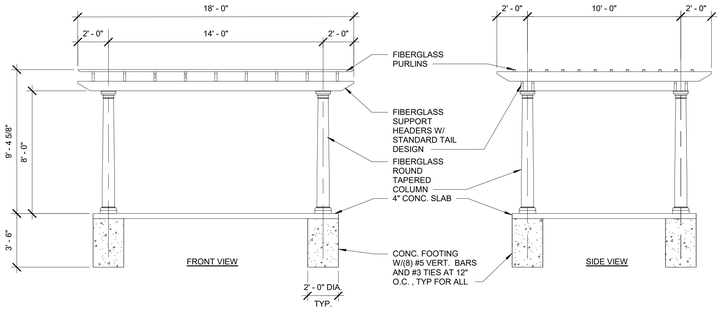
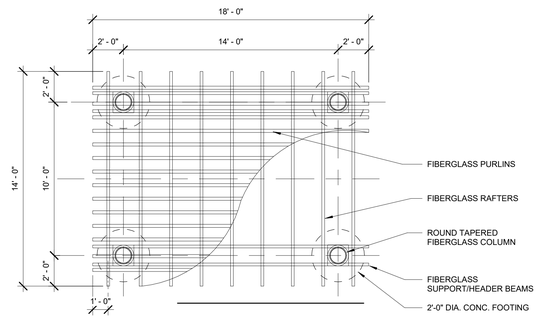
JOB NO.: 161675

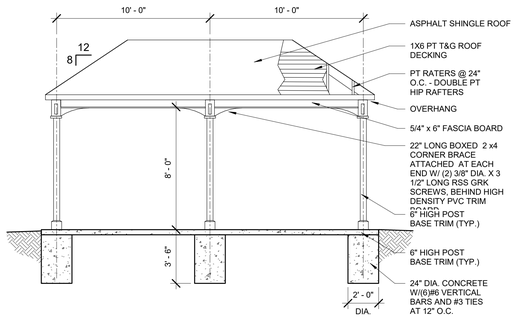


8 A3.1 **PERGOLA - ELEVATIONS**
1/4" = 1'-0"

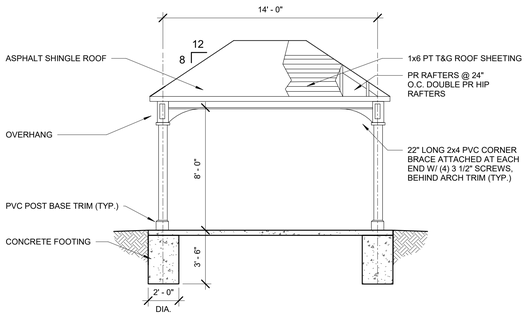
NOTE:
1. THE FREESTANDING PVC PAVILION AND THE FIBERGLASS PERGOLA ARE A READY-TO-ASSEMBLE KIT. THE BASIS OF DESIGN IS PERGOLA KITS USA. REFER TO SPECIFICATIONS.



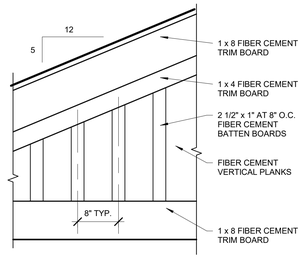
N 7 A3.1 **PERGOLA -PLAN**
1/4" = 1'-0"



5 A3.1 **PAVILION ELEVATION - FRONT**
1/4" = 1'-0"

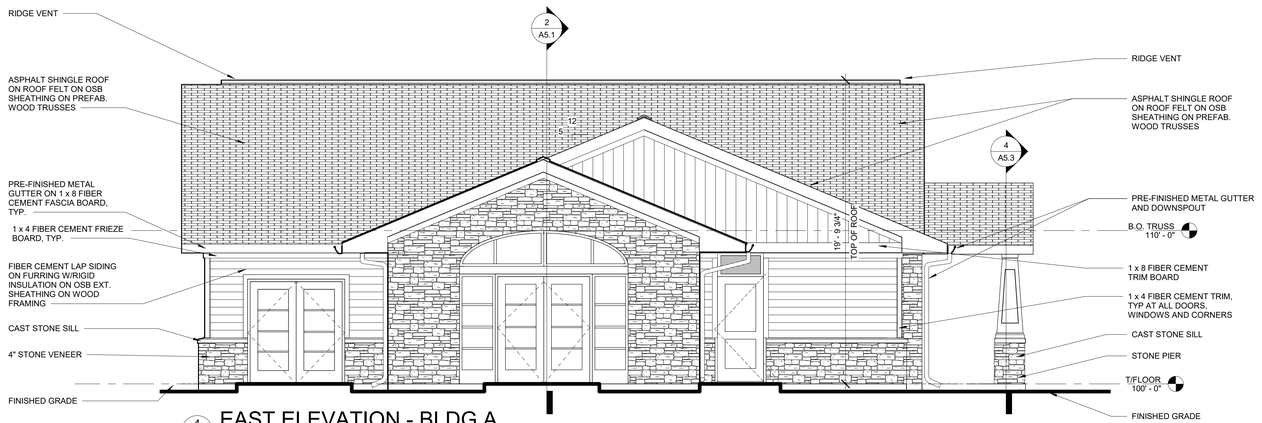


6 A3.1 **PAVILION ELEVATION - SIDE**
1/4" = 1'-0"

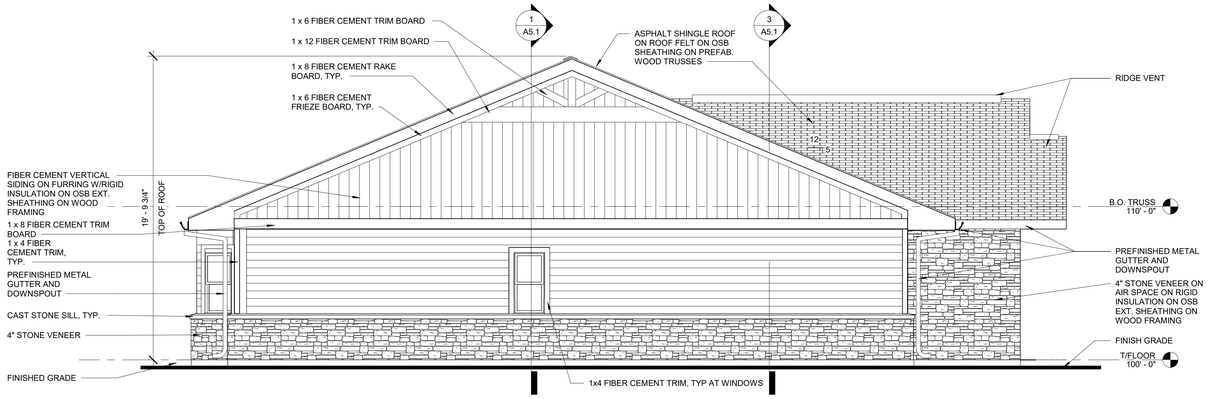


9 A3.1 **TYP. VERTICAL SIDING DETAIL**
1" = 1'-0"

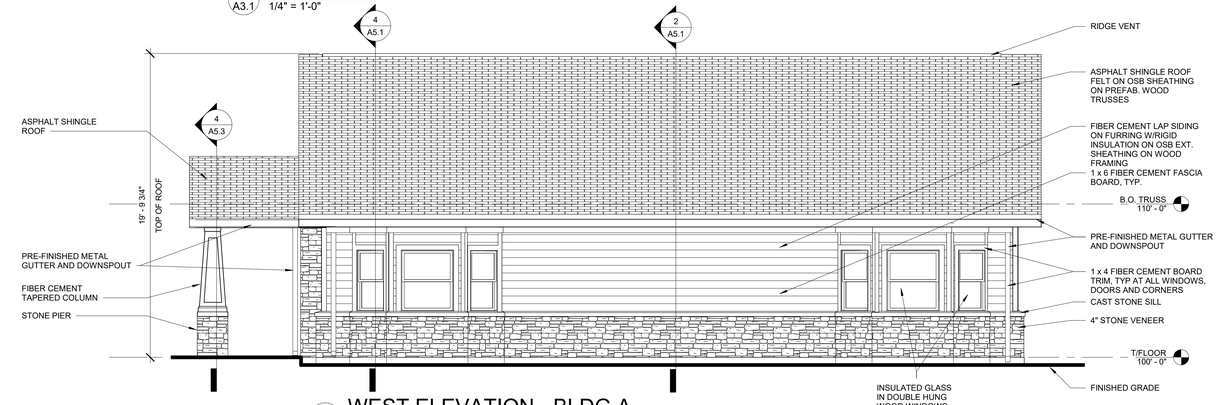
NOTES:
1. BASIS OF DESIGN IS PERGOLA KITS USA: PREMIUM VINYL PAVILION WITH TRADITIONAL METAL ROOF. REFER TO SPECIFICATIONS.
2. WEDGE BOTS MUST BE A MINIMUM OF 8" AWAY FROM ANY EDGE OF CONCRETE FOOTING OR SLAB.



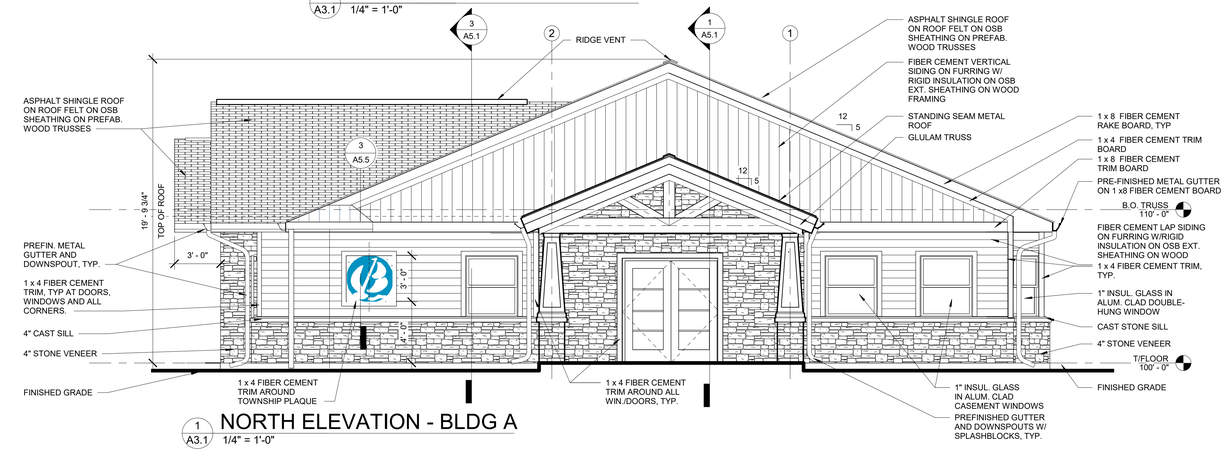
4 A3.1 **EAST ELEVATION - BLDG A**
1/4" = 1'-0"



3 A3.1 **SOUTH ELEVATION - BLDG A**
1/4" = 1'-0"



2 A3.1 **WEST ELEVATION - BLDG A.**
1/4" = 1'-0"



1 A3.1 **NORTH ELEVATION - BLDG A**
1/4" = 1'-0"

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EXTERIOR ELEVATIONS

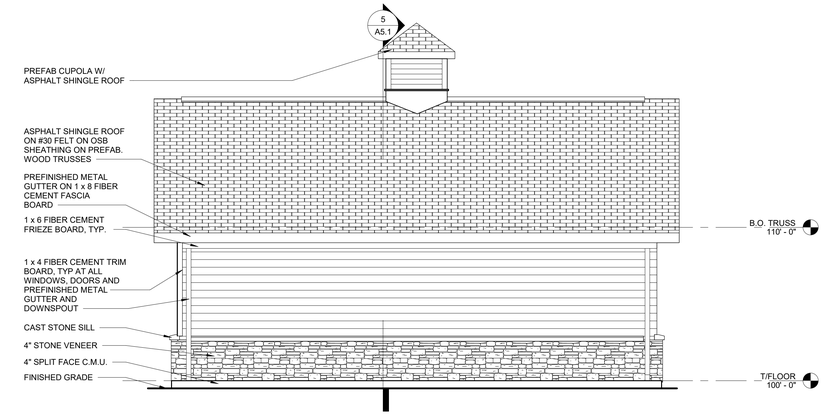
PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐
DRAWN BY:	KAN
CHECKED BY:	BS

REVISIONS:
09/25/18 CONSTRUCTION SET

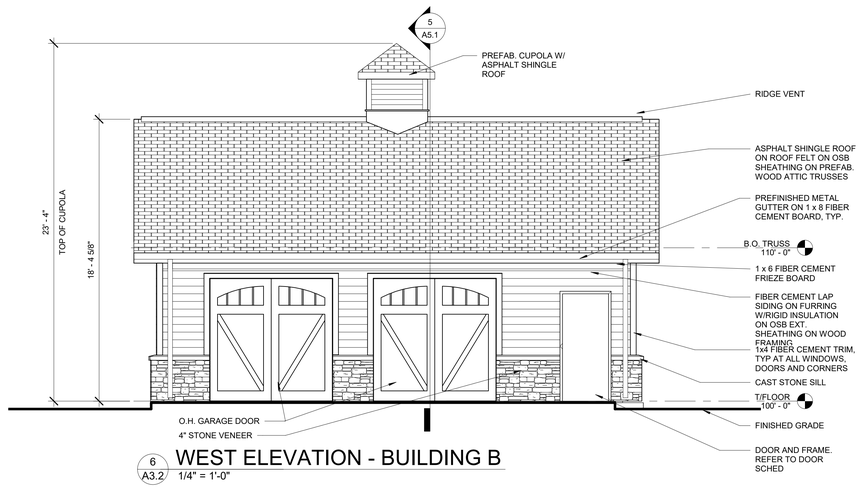
DATE: 05/12/17

SHEET NO.:
A3.1

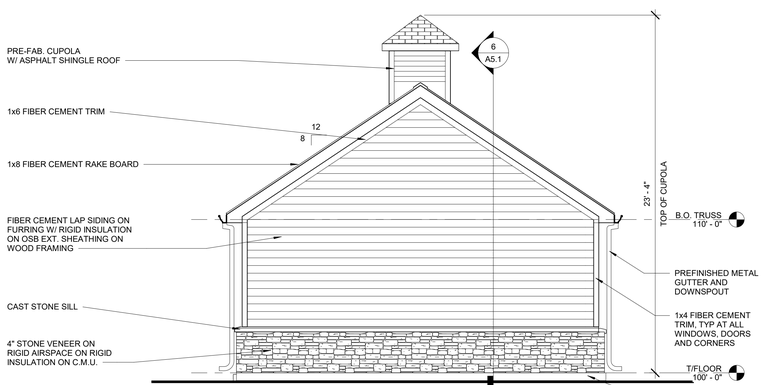
JOB NO.: 161675



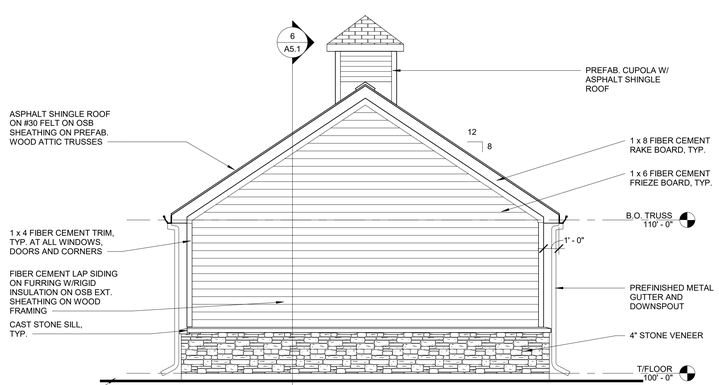
8 A3.2 EAST ELEVATION - BLDG. B
1/4" = 1'-0"



6 A3.2 WEST ELEVATION - BUILDING B
1/4" = 1'-0"



7 A3.2 SOUTH ELEVATION - BLDG. B
1/4" = 1'-0"



5 A3.2 NORTH ELEVATION - BLDG. B
1/4" = 1'-0"

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CHECKED BY: BS

REVISIONS:
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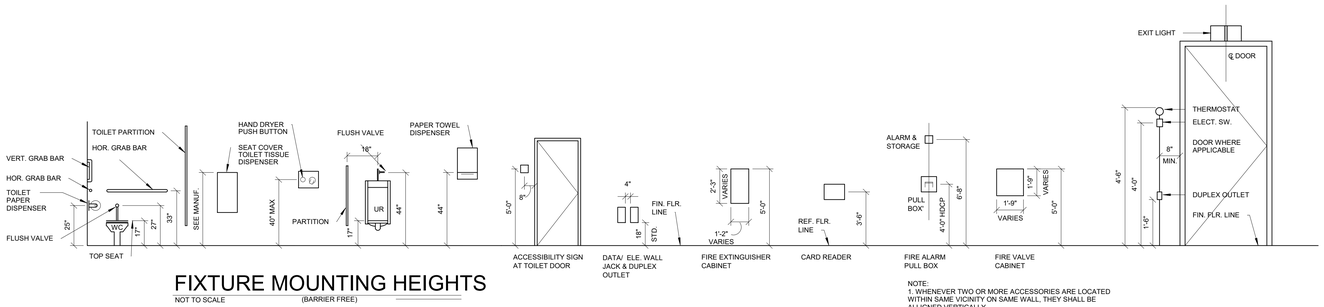
DATE: 06/19/17

SHEET NO.:
A3.2

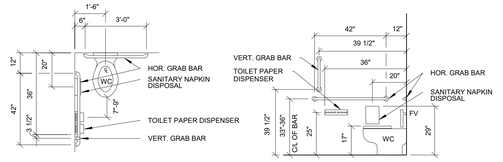
JOB NO.: 161675



FIXTURE MOUNTING HEIGHTS

NOT TO SCALE (BARRIER FREE)

NOTE:
1. WHENEVER TWO OR MORE ACCESSORIES ARE LOCATED WITHIN SAME VICINITY ON SAME WALL, THEY SHALL BE ALLIGNED VERTICALLY.

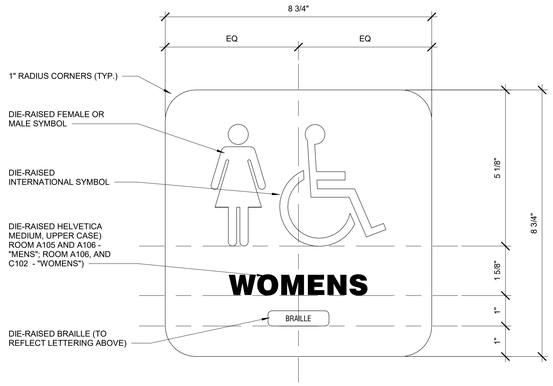


FIXTURE MOUNTING LOCATION

NOT TO SCALE (BARRIER FREE TOILET)

TOILET ACCESSORY LEGEND:

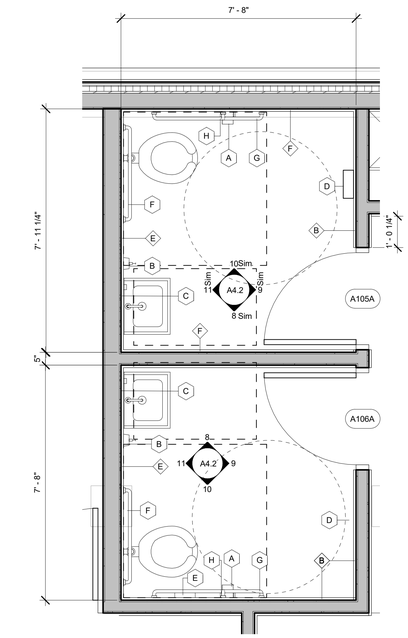
A	TOILET PAPER HOLDER
B	SOAP DISPENSOR
C	24" x 36" MIRROR
D	ELECTRIC HAND DRYER
E	SANITARY NAPKIN DISPOSAL
F	36" GRAB BAR
G	42" GRAB BAR
H	18" VERTICAL GRAB BAR
J	3'-0" x 3'-0" SHOWER STALL



4 A4.1 BATHROOM SIGNAGE

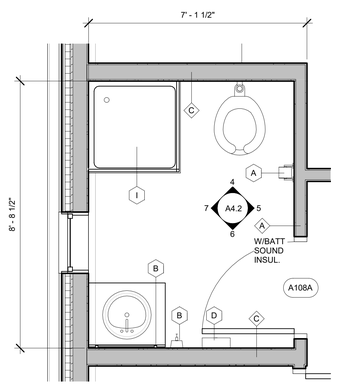
6" = 1'-0"

ALL PUBLIC BATHROOMS TO HAVE A BATHROOM SIGN.



N 2 A4.1 ENLARGED PLAN - BUILDING A

1/2" = 1'-0"



N 1 A4.1 ENLARGED PLAN- BUILDING A

1/2" = 1'-0"

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VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

ENLARGED FLOOR PLANS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: KAN
CHECKED BY: BS

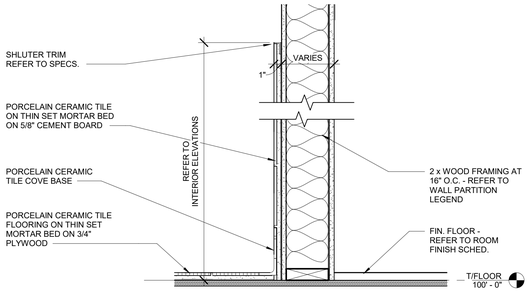
REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 07/12/17

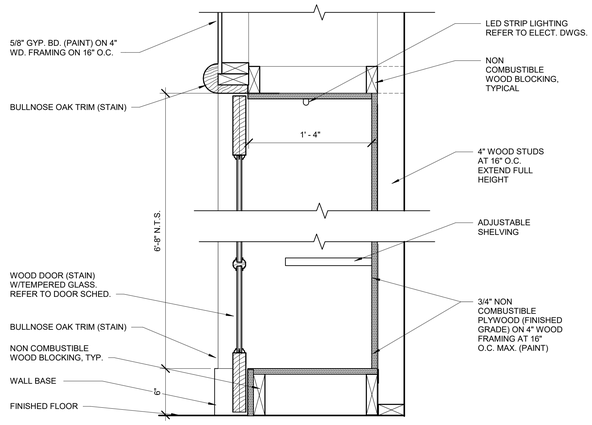
SHEET NO.:

A4.1

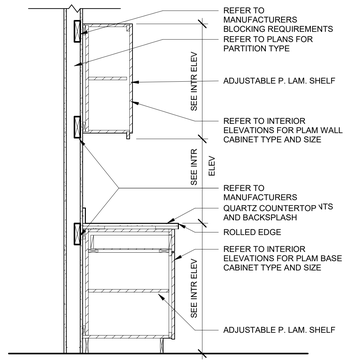
JOB NO.: 161675



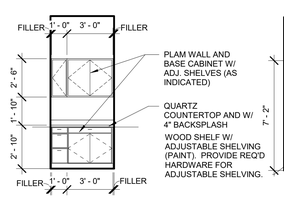
26 A4.2 TILE WAINSCOT
1 1/2" = 1'-0"



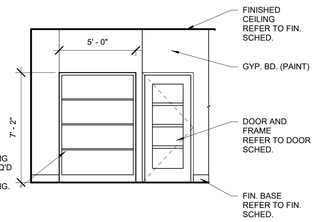
25 A4.2 SECTION DETAIL
1 1/2" = 1'-0"



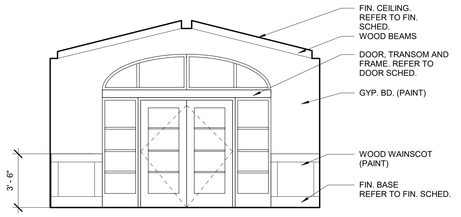
24 A4.2 TYPICAL CABINET SECTION
3/4" = 1'-0"



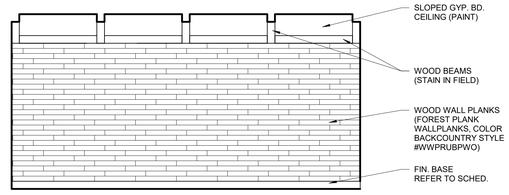
23 A4.2 INT. ELEVATION
1/4" = 1'-0"



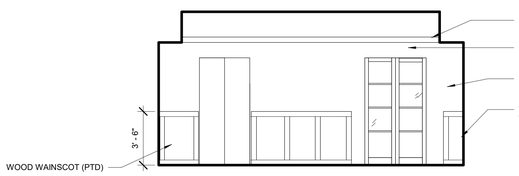
22 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



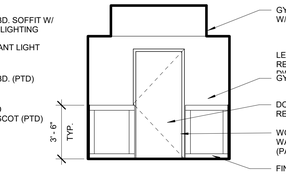
21 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"
NOTE: NORTH AND EAST WALL TO RECEIVE WOOD WAINSCOT.



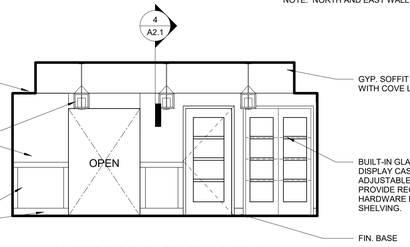
20 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



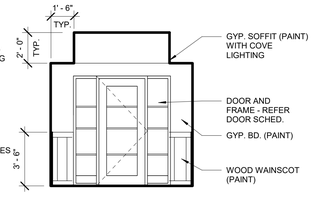
19 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



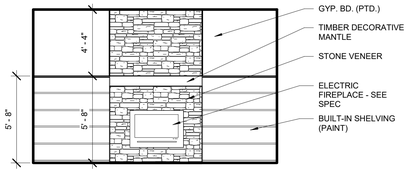
18 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



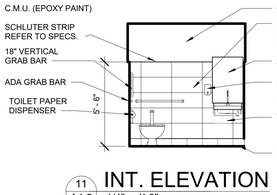
17 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"
NOTE: ALL WALLS IN HALL A104 TO RECEIVE WOOD WAINSCOT.



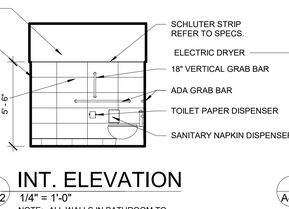
16 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



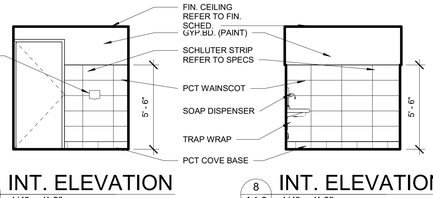
15 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



11 A4.2 INT. ELEVATION
1/4" = 1'-0"
NOTE: ALL WALLS IN BATHROOM TO RECEIVE PCT WAINSCOT.

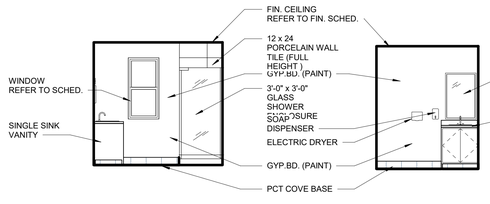


10 A4.2 INT. ELEVATION
1/4" = 1'-0"
NOTE: ALL WALLS IN BATHROOM TO RECEIVE PCT WAINSCOT.

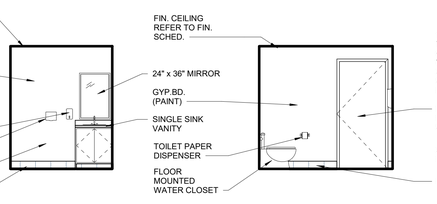


9 A4.2 INT. ELEVATION
1/4" = 1'-0"
NOTE: ALL WALLS IN BATHROOM TO RECEIVE PCT WAINSCOT.

8 A4.2 INT. ELEVATION
1/4" = 1'-0"
NOTE: ALL WALLS IN BATHROOM TO RECEIVE PCT WAINSCOT.

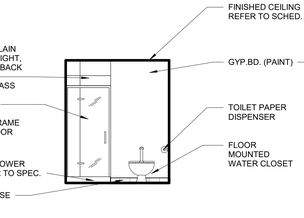


7 A4.2 INT. ELEVATION
1/4" = 1'-0"

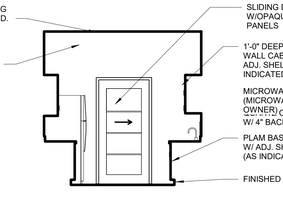


6 A4.2 INT. ELEVATION
1/4" = 1'-0"

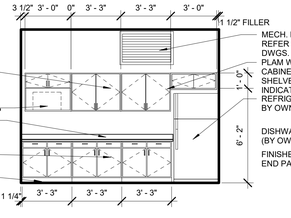
5 A4.2 INT. ELEVATION
1/4" = 1'-0"



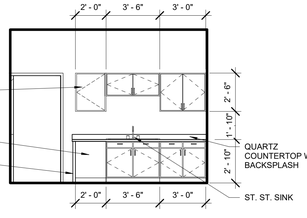
4 A4.2 INT. ELEVATION
1/4" = 1'-0"



3 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



2 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"



1 A4.2 INTERIOR ELEVATION
1/4" = 1'-0"

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DDA 2016 PLACEMAKING PROJECT
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INTERIOR ELEVATIONS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

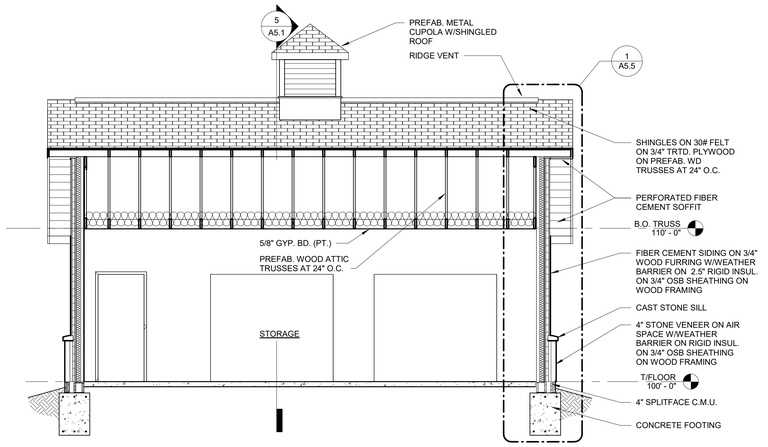
DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

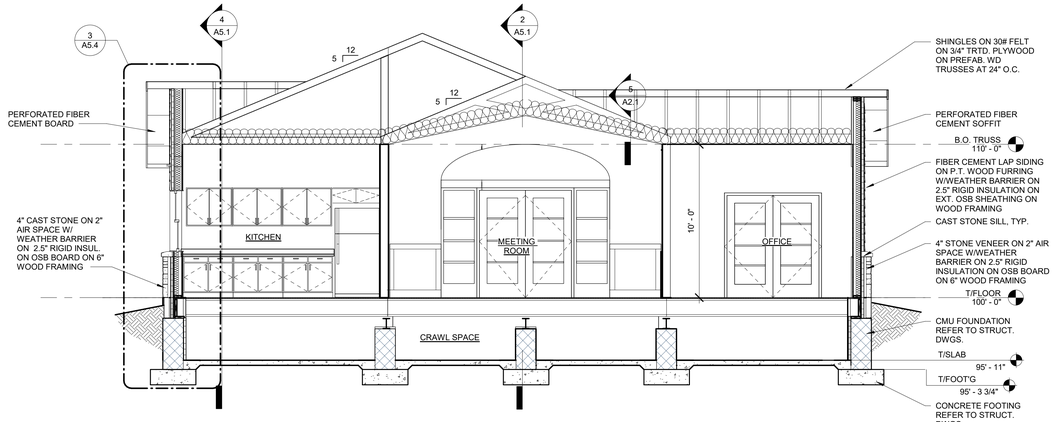
DATE: 05/25/17

SHEET NO.:
A4.2

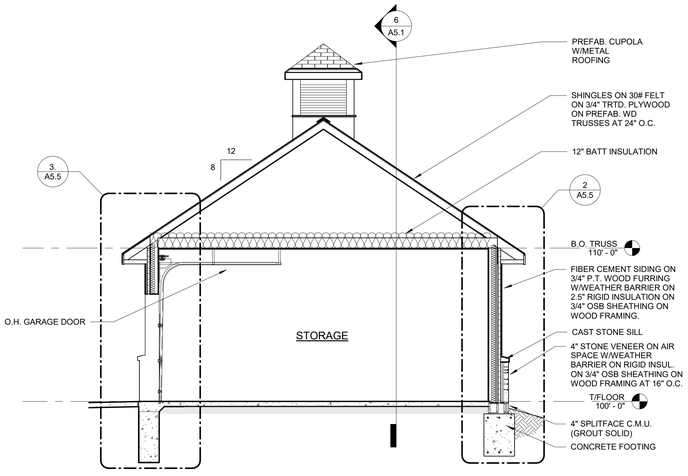
JOB NO.: 161675



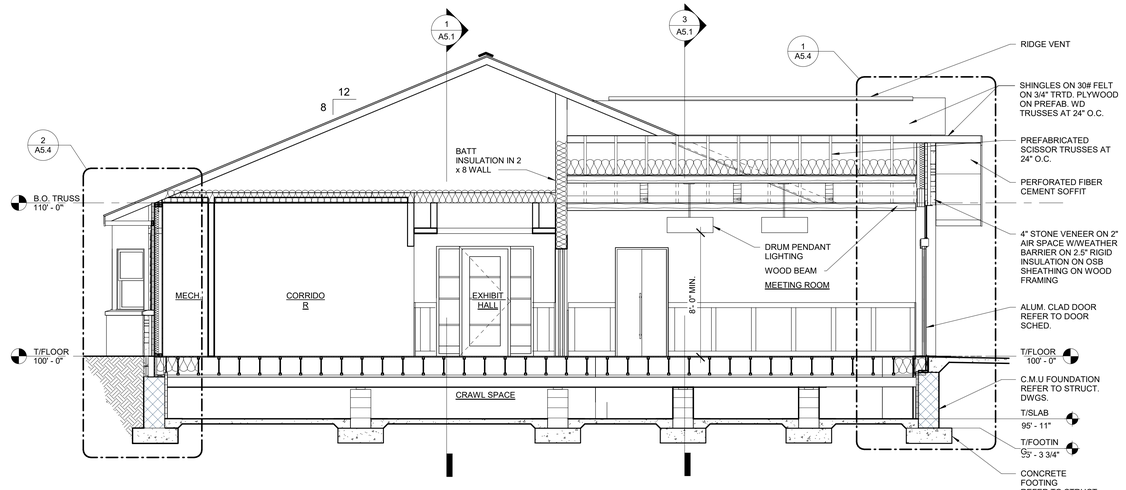
6 A5.1 BUILDING SECTION - BUILDING B
1/4" = 1'-0"



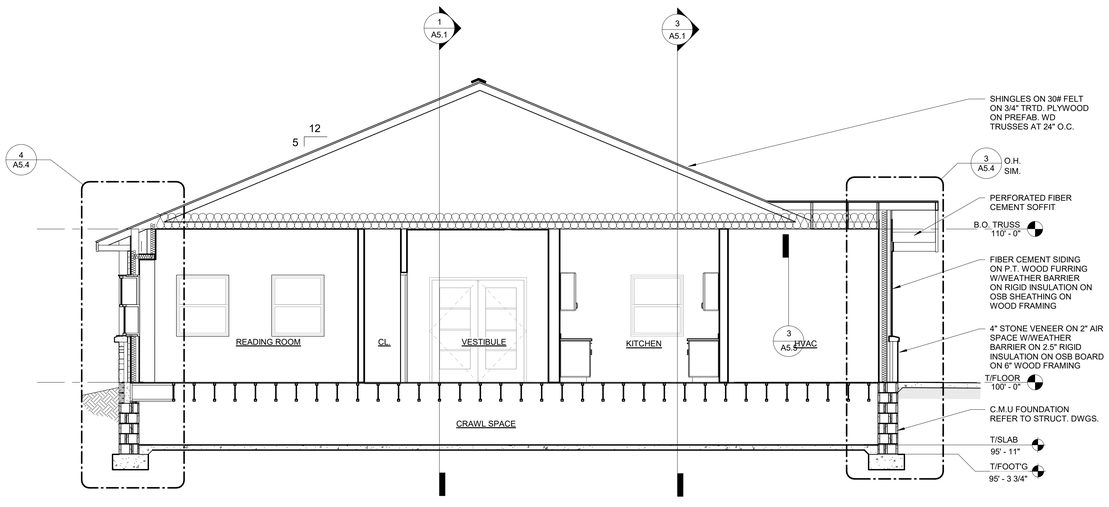
3 A1.1 BUILDING SECTION - BLDG. A
1/4" = 1'-0"



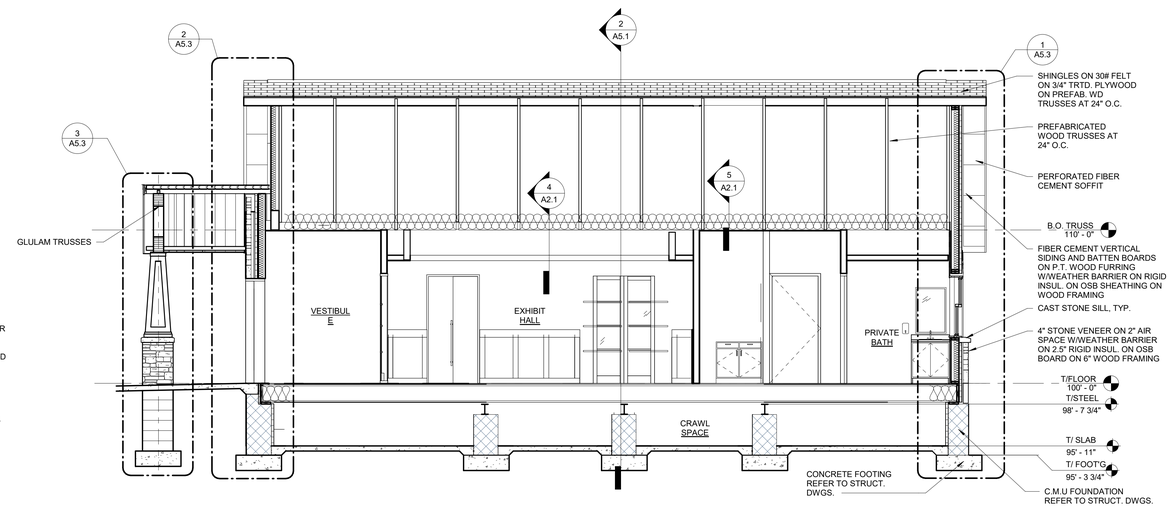
5 A5.1 BUILDING SECTION - BUILDING B
1/4" = 1'-0"



2 A1.1 BUILDING SECTION - DDA FACILITY
1/4" = 1'-0"



4 A5.1 BUILDING SECTION
1/4" = 1'-0"



1 A1.1 BUILDING SECTION - DDA FACILITY
1/4" = 1'-0"

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BUILDING SECTIONS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

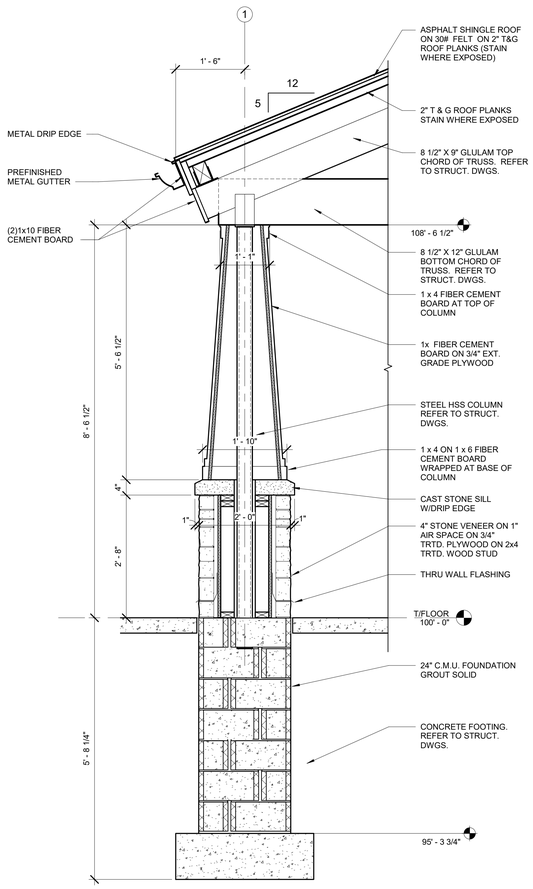
DRAWN BY:	KAN
CHECKED BY:	BS

REVISIONS:
09/25/18 CONSTRUCTION SET

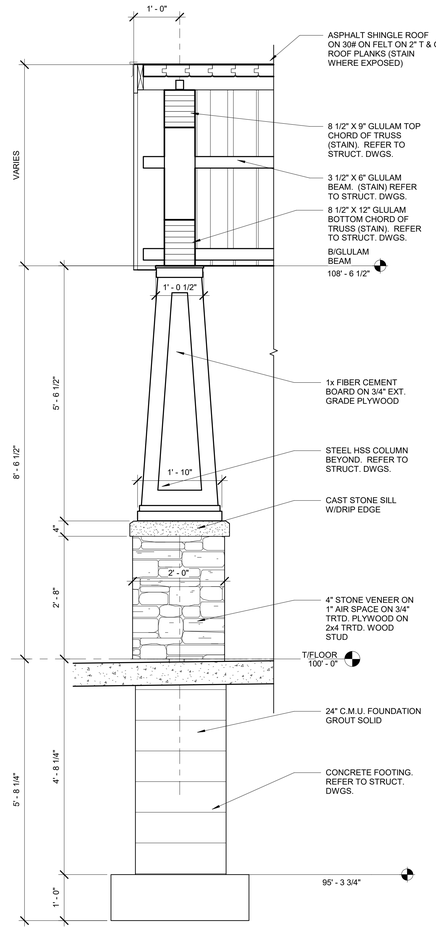
DATE: 05/25/17

SHEET NO.:
A5.1

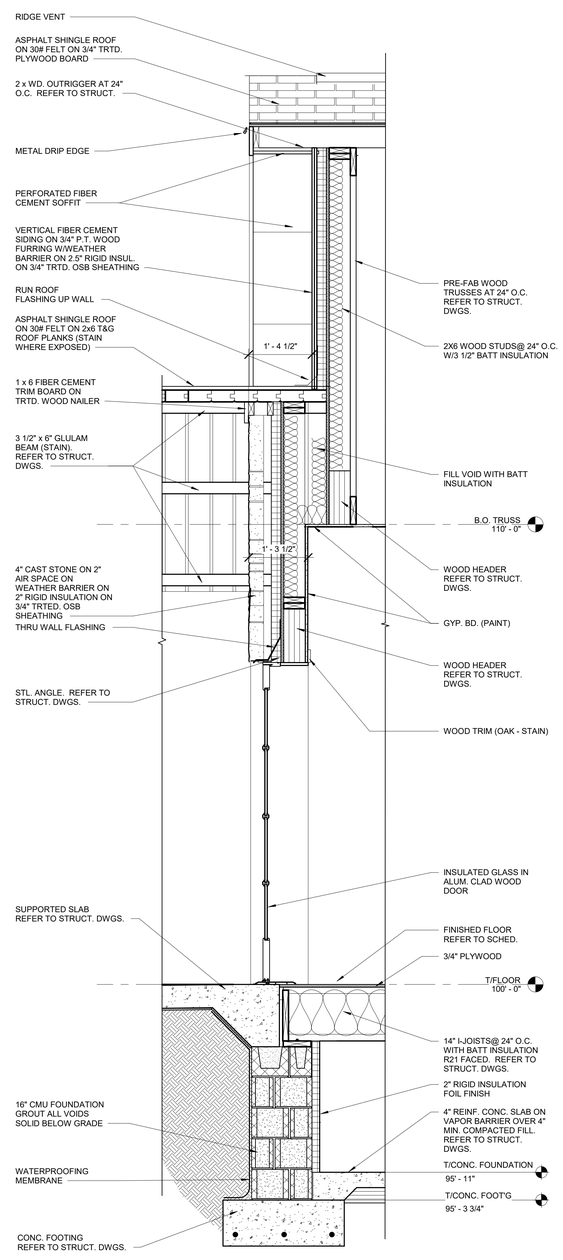
JOB NO.: 161675



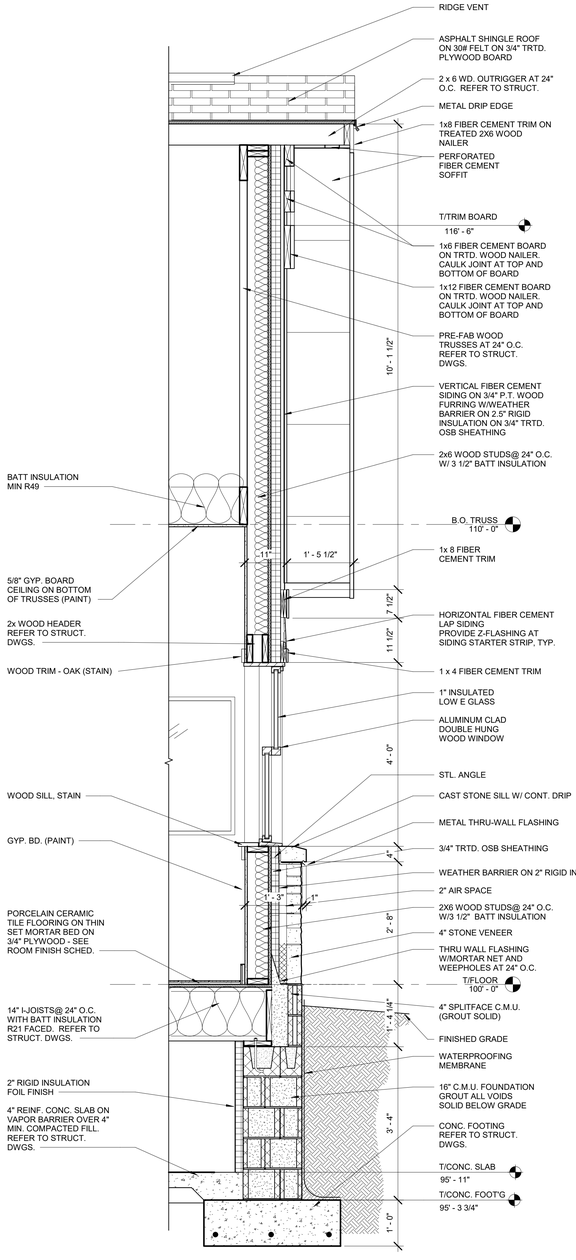
4 A5.3 WALL SECTION
3/4" = 1'-0"



3 A5.3 WALL SECTION
3/4" = 1'-0"



2 A5.3 WALL SECTION
3/4" = 1'-0"



1 A5.3 WALL SECTION
3/4" = 1'-0"

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WALL SECTIONS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

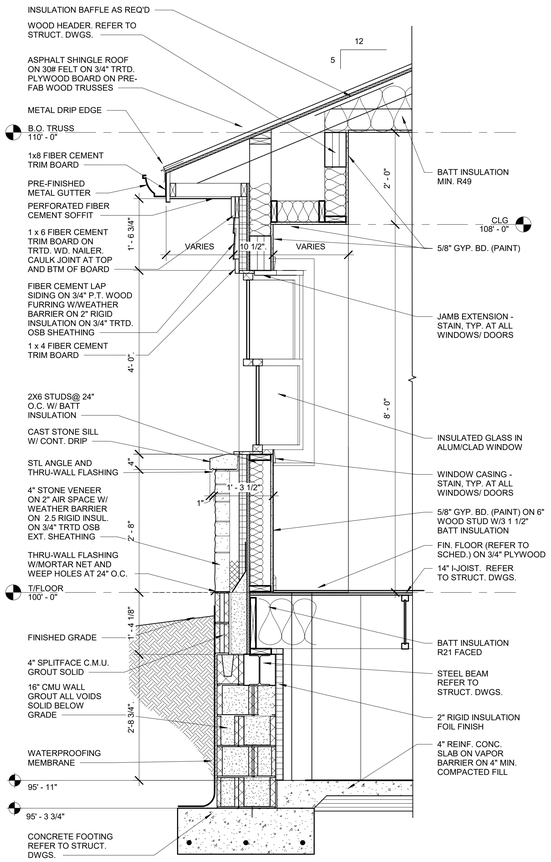
DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

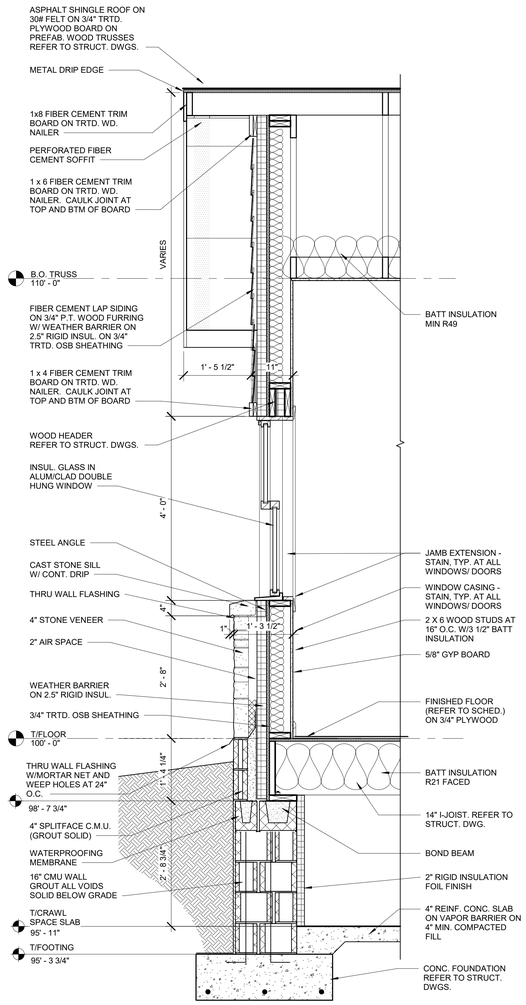
DATE: 05/25/17

SHEET NO.:
A5.3

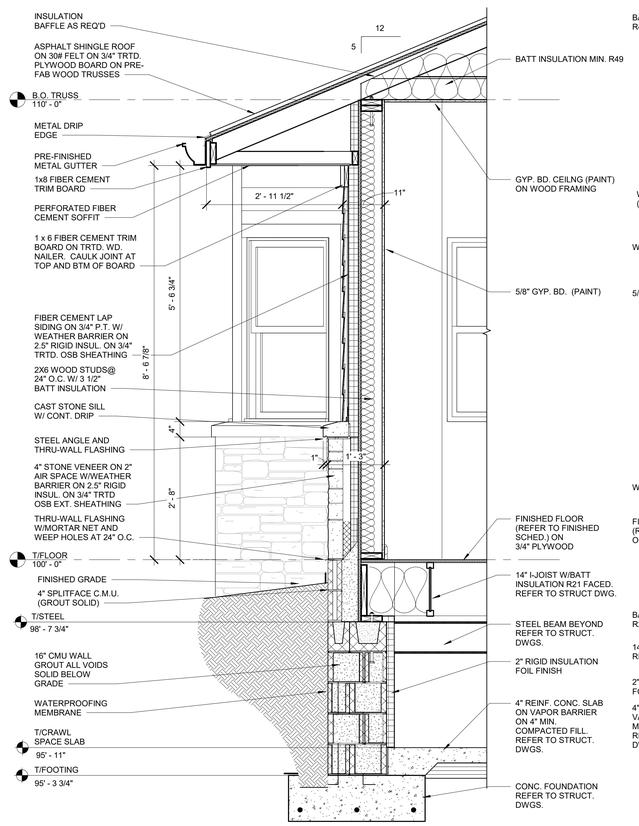
JOB NO.: 161675



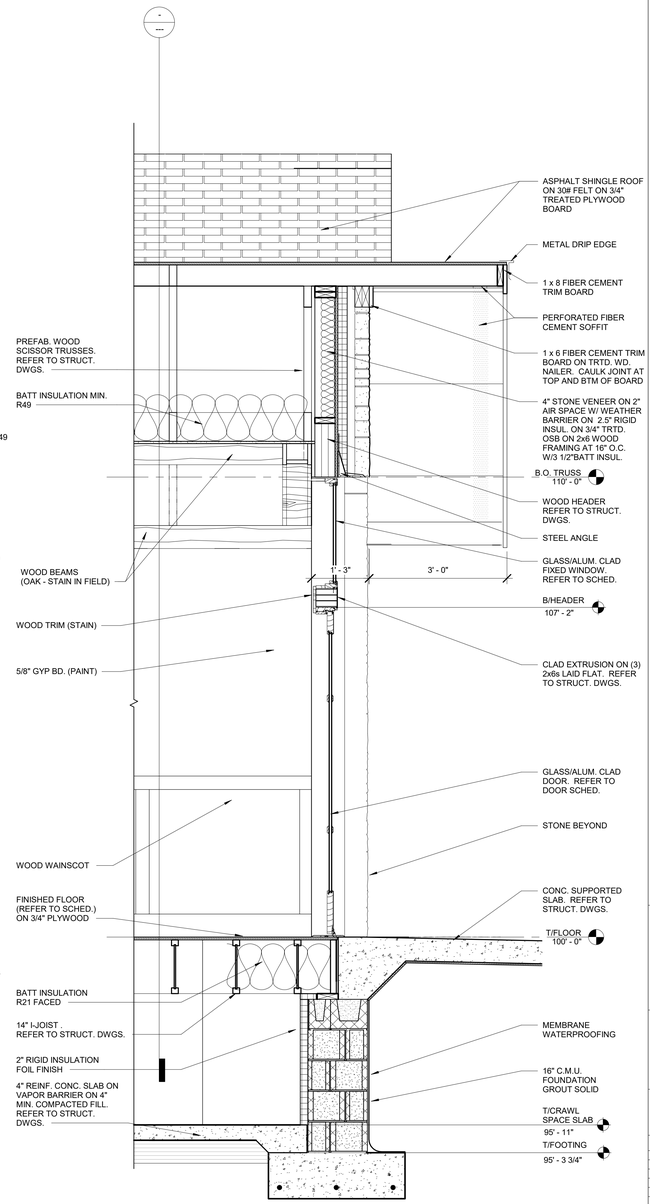
4 A5.4 WALL SECTION
3/4" = 1'-0"



3 A5.4 WALL SECTION
3/4" = 1'-0"



2 A5.4 WALL SECTION
3/4" = 1'-0"



1 A5.4 WALL SECTION
3/4" = 1'-0"

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WALL SECTIONS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

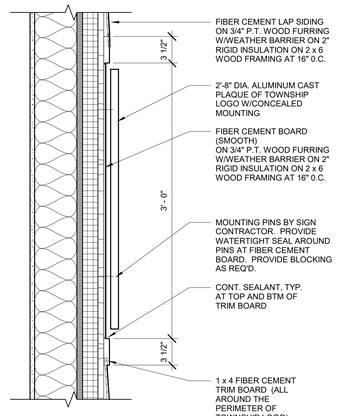
DATE: 05/25/17

SHEET NO.:
A5.4

JOB NO.: 161675

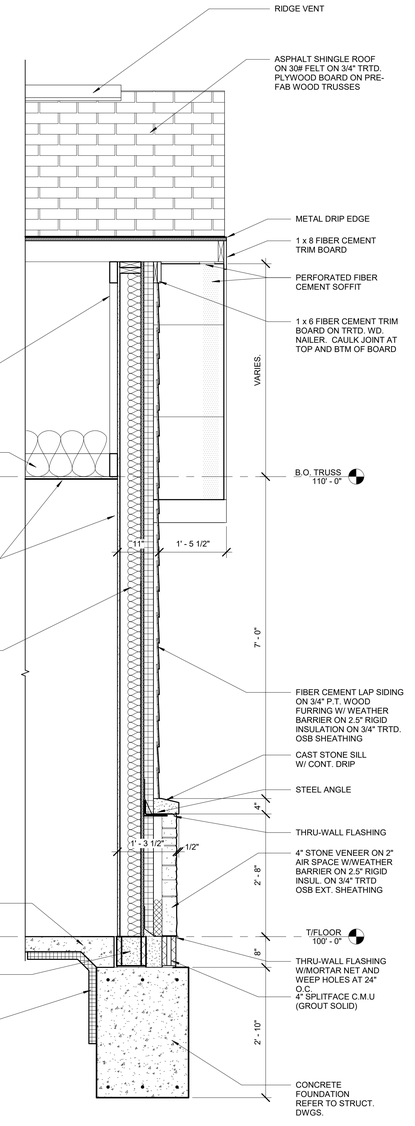
ELEVATION

CONFIRM FINAL IMAGE WITH OWNER PRIOR TO FABRICATION



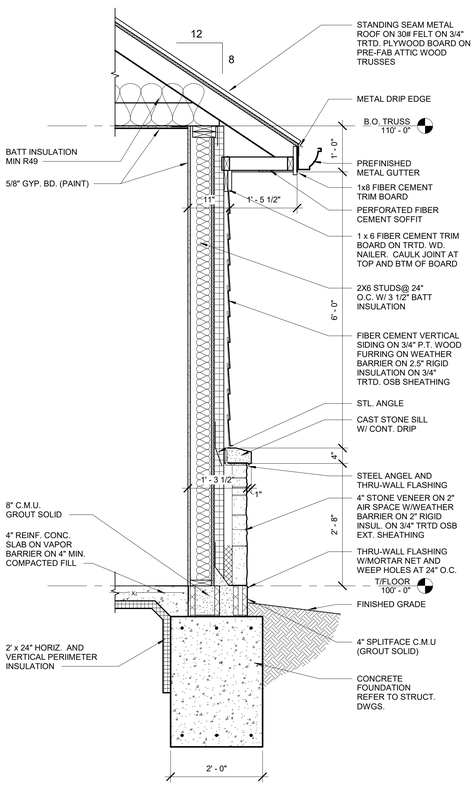
3 / A5.5 SECTION DETAIL

1 1/2" = 1'-0"



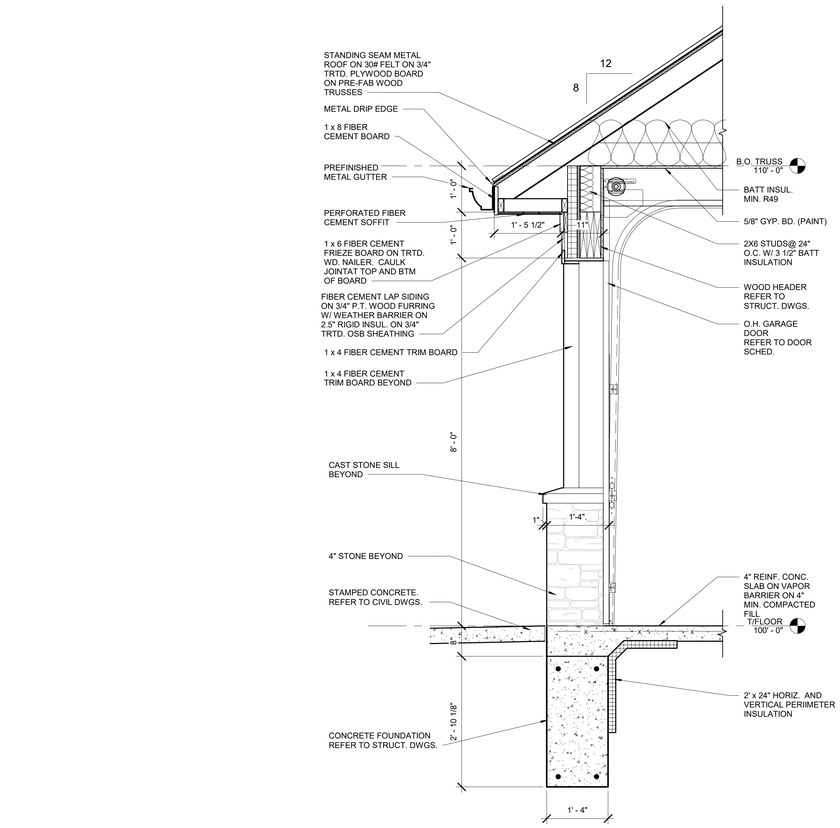
1 / A5.5 WALL SECTION

3/4" = 1'-0"



2 / A5.5 WALL SECTION

3/4" = 1'-0"



3. / A5.5 WALL SECTION

3/4" = 1'-0"

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DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 07/28/17

SHEET NO.:

A5.5

JOB NO.: 161675

REMARKS - DOOR SCHEDULE

1 REFER TO SPECIFICATION FOR DOOR HARDWARE FOR ALL DOORS.
2 PROVIDE INSULATED GLASS IN DOOR AND FRAME OPENINGS
3 SLIDING POCKET DOOR WITH 1/4" OPAQUE LAM. GLASS PANELS.
4 PROVIDE 1/4" LAM. GLASS IN DOOR AND FRAME OPENINGS. REFER TO SPECS.
5 REFER TO WOOD HEAD AND JAMB DETAIL 1 AND 3.
6 REFER TO WOOD HEAD AND JAMB DETAIL 1, 2 AND 3.

GENERAL DOOR NOTES:

1. ALL FRP DOOR AND ALUMINUM FRAMES TO RECEIVE MANUFACTURER FINISH. REFER TO SPECIFICATIONS.
2. ALL NEW WOOD DOORS CALLING FOR STAIN TO BE FACTORY STAINED AND SEALED ON ALL SURFACES, SIDES AND ENDS. DO NOT LEAVE RAW WOOD ON ENDS EXPOSED.
3. ALL INTERIOR DOORS ARE NOT TO HAVE DOOR STOPS.
4. ALL WINDOW JAMBS EXTENSIONS TO BE STAINED.

ROOM FINISH SCHEDULE NOTES

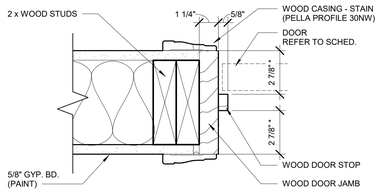
1 REFER TO INTERIOR ELEVATIONS FOR WALL MATERIALS.
2 PAINT ALL PIPES, CONDUIT, DUCTWORK, ETC. EXPOSED IN THE CEILING.
3 PROVIDE NEW WINDOW SHADES ON ALL WINDOW OPENINGS. VERIFY OPENING SIZES IN FIELD.
4 REFER TO REFLECTED CEILING PLAN FOR CEILING HEIGHTS.
5 PROVIDE 36" H. TILE ON WALL BEHIND AND ADJACENT TO THE JANITOR'S CLOSET SINK.
6 SHOWER ENCLOSURE TO HAVE FULL HEIGHT PORCELAIN TILE WALL. REFER TO INTERIOR ELEVATIONS.
7 ALL WOOD FLOOR BASE TO BE PAINTED.

ABBREVIATIONS

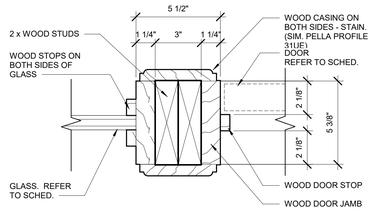
AL OR ALUM	ALUMINUM
CPT	CARPET
HM	HOLLOW METAL
MAR	MARBLE
PFN	PRE-FINISHED
PT	PAINTED
STN	STAINED
TG	TEMPERED GLASS
WD	WOOD

ROOM FINISH SCHEDULE ABBREVIATIONS

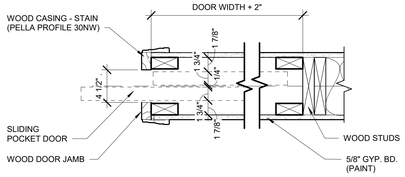
6PCT	6" PORCELAIN CERAMIC TILE COVE BASE
AP	ACOUSTIC WALL PANELS
CPT	CARPET - SEE SPECIFICATIONS
EP	EPOXY PAINT
ETR	EXISTING TO REMAIN
EXP	EXPOSED CONSTRUCTION
GB	GYPSUM BOARD
PCT	PORCELAIN CERAMIC TILE
PT	PAINT
RAF	RAISED ACCESS FLOORING SYSTEM
RB	4" RESILIENT COVE BASE
RF	RUBBER FLOORING
RTR	RUBBER TREADS / RISERS
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
WB	6" WOOD BASE (OAK - STN)
WCPT	WALK OFF CARPETING
WP	WOOD PLANKS
WW	WOOD PANELING WAINSCOT



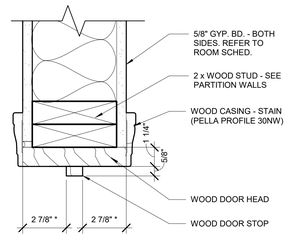
1 A6.0 WOOD FRAME DETAIL - JAMB
3" = 1'-0"



2 A6.0 WOOD FRAME DETAIL - JAMB
3" = 1'-0"

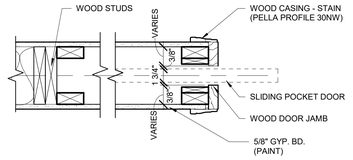


4 A6.0 WOOD FRAME DETAIL - JAMB
1 1/2" = 1'-0"



*DIMENSIONS MAY VARY DEPENDING ON PARTITION WALL

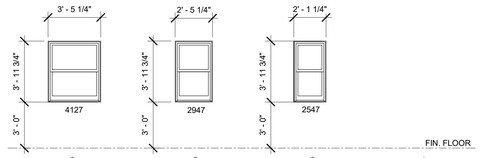
3 A6.0 WOOD FRAME DETAIL - HEAD
3" = 1'-0"

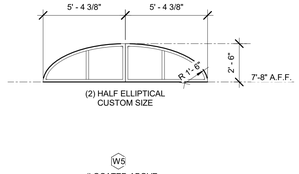


5 A6.0 WOOD FRAME DETAIL - JAMB
1 1/2" = 1'-0"

WINDOW SCHEDULE

NOTES:
1. BASIS OF DESIGN: PELLA ALUMINUM CLAD WINDOWS, DESIGNER SERIES.
2. ARCHITECT/OWNER TO SELECT STAIN AND CLAD COLOR.
3. PROVIDE JAMB EXTENSIONS FOR ALL WINDOWS.
4. ALL DIMENSIONS SHOWN BELOW ARE FOR ROUGH OPENINGS.
5. ALL INTERIOR WOOD CASING (SIM. TO PELLA TRIM PROFILE 30NX) TO BE STAINED.





DOOR SCHEDULE

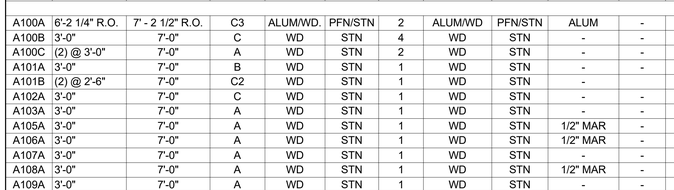
No.	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	DOOR MAT'L	DOOR FINISH	FRAME TYPE	FRAME MAT'L	FRAME FINISH	THRESHOLD	UL	HW SET	REMARKS
A100A	6'-2 1/4" R.O.	7' - 2 1/2" R.O.	C3	ALUM/WD.	PFN/STN	2	ALUM/WD	PFN/STN	ALUM	-		2
A100B	3'-0"	7'-0"	C	WD	STN	4	WD	STN	-	-		2,6
A100C	(2) @ 3'-0"	7'-0"	A	WD	STN	2	WD	STN	-	-		5
A101A	3'-0"	7'-0"	B	WD	STN	1	WD	STN	-	-		4,5
A101B	(2) @ 2'-6"	7'-0"	C2	WD	STN	1	WD	STN	-			4,5
A102A	3'-0"	7'-0"	C	WD	STN	1	WD	STN	-	-		4,5
A103A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	-	-		5
A105A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	1/2" MAR	-		5
A106A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	1/2" MAR	-		5
A107A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	-	-		5
A108A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	1/2" MAR	-		5
A109A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	-	-		5
A111A	3'-0"	7'-0"	A	WD	STN	1	WD	STN	-	-		5
A111B	6'-2 1/4" R.O.	7' - 2 1/2" R.O.	E	ALUM/WD.	PFN/STN	2	ALUM/WD	PFN/STN	-	-		2
A112A	4'-0"	7'-0"	C	WD	STN	1	WD	STN	-	-		3,5 SIM.
A112B	3'-0"	7'-0"	C	WD	STN	1	WD	STN	-	-		3,5 SIM.
A112C	6'-2 1/4" R.O.	7' - 2 1/2" R.O.	E	ALUM/WD.	PFN/STN	3	ALUM/WD	PFN/STN	ALUM	-		2
A113A	3'-0"	7'-0"	A	WD	STN	1	WD	PFN/STN		-		3,5 SIM.
A114A	3'-2 3/8" R.O.	7' - 2 1/2" R.O.	F	ALUM/WD.	PFN/STN	1	ALUM/WD	PFN/STN	ALUM			2
B100A	3'-0"	7'-0"	A	FRP	PFN	1A	AL	PFN	ALUM	-		
B100B	8'-0"	8'-0"	D	STL	PFN	-	-	PFN		-		
B100C	8'-0"	8'-0"	D	STL	PFN	-	-	PFN		-		

ROOM FINISH SCHEDULE

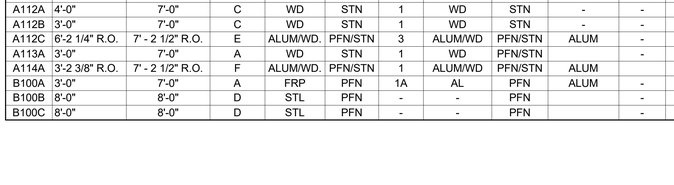
NO.	ROOM NAME	FLOOR	BASE	WALL	WALL FINISH	CEILING MATERIAL	CEILING HEIGHT	REMARKS
A100	VEST.	WCPT	WCPT	GB-PT	PT	GB-PT	10'-0"	
A100A	CLOSET	CPT	WD	GB-PT		GB-PT	10'-0"	
A101	EXHIBIT HALL	LVT	WD	GB-PT/WW	PT	GB-PT	VARIES	1,4,7
A102	READING ROOM	CPT	WD	GB-PT	PT	GB-PT	VARIES	1,3,7
A103	J.C.	EPT	-	GB-EP	GYP BD. - PT.	GB-EP	10'-0"	5
A104	HALL	LVT	WD	GB-PT/WW		GB-PT	10'-0"	1,7
A105	MENS	PCT	6PCT	PCT/GB-PT	PAINT	GB-PT	8'-0"	1
A106	WOMEN	PCT	6PCT	PCT/GB-PT		GB-PT	8'-0"	1
A107	OFFICE	CPT	WD	GB-PT	PAINT	GB-PT	10'-0"	3,7
A108	PRIVATE TOILET	PCT	6PCT	PCT		GB-PT	10'-0"	1,3,6
A109	STORAGE	EPT	-	GB-PT	PAINT	GB-PT	10'-0"	
A110	HALL	LVT	WD	GB-PT/WW		GB-PT	10'-0"	1,7
A111	OFFICE	CPT	WD	GB-PT	PAINT	GB-PT	10'-0"	3,7
A112	MEETING ROOM	LVT	WD	GB-PT/WP/WW	STAINED	GB-PT	VARIES	1,3,4,7
A113	KITCHEN	LVT	WD	GB-PT	PAINT	GB-PT	10'-0"	3,7
A114	MECH/ELECT.	EP	-	CMU-EP		GB-PT	10'-0"	
B100	STORAGE	EP	-	CMU-EP	PAINT	GB-EP	10'-0"	

DOOR ELEVATIONS:

NOTES:
1. BASIS OF DESIGN: PELLA ALUMINUM CLAD DOORS, ARCHITECT SERIES TRADITIONAL SERIES.
2. ARCHITECT/OWNER TO SELECT STAIN AND CLAD COLOR.
3. PROVIDE JAMB EXTENSIONS DOORS AS REQUIRED.
4. ALL INTERIOR WOOD CASING (SIM. TO PELLA TRIM PROFILE 30NW) TO BE STAINED.

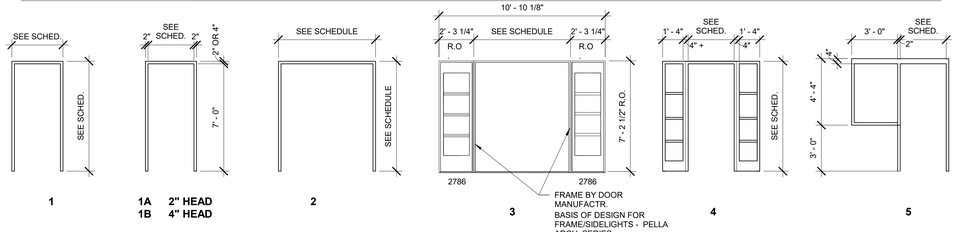


A B C C2 C3



D E F

FRAME ELEVATIONS:



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DDA 2016 PLACEMAKING PROJECT
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SCHEDULES

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: KAN
CHECKED BY: BS

REVISIONS:
09/25/18 CONSTRUCTION SET

DATE: 05/25/17

SHEET NO.:
A6.0

JOB NO.: 161675

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
AAV	AUTOMATIC AIR VENT / AIR ADMITTANCE VALVE
AD	ACCESS DOOR
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
ASR	AUTOMATIC SPRINKLER RISER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
BWV	BACKWATER VALVE
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATING
CLG	COOLING
CO	CLEAN OUT
CONT	CONTINUATION OR CONTINUED
CONV	CONVECTOR
CUH	CABINET UNIT HEATER
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DEG	DEGREES
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
(E)	EXISTING
EA/EXH	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELECT	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
EWC	ELECTRIC WATER COOLER
°F	DEGREES FAHRENHEIT
FA	FACE AREA (COIL) / FREE AREA (LOUVER)
FC	FLEXIBLE CONNECTION
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FFD	FUNNEL FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FS	FLOOR SINK
FT	FEET
FURN	FURNISHED
FV	FACE VELOCITY
FVC	FIRE VALVE CABINET
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HO	HUB OUTLET
HP	HORSEPOWER

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
HR	HOUR
HTG	HEATING
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INST	INSTALLED
INV	INVERT
ISP	INTERNAL STATIC PRESSURE
IW	INDIRECT WASTE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LBS/HR	POUNDS PER HOUR
LDB	LEAVING DRY BULB TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MOTOR OPERATED DAMPER (AUTOMATIC)
MOP	MAXIMUM OVER-CURRENT PROTECTION
N.C.	NOISE CRITERIA
NIC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NOM	NOMINAL
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER / CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
ORS	OVERFLOW ROOF SUMP
OS&Y	OUTSIDE SCREW AND YOKE
PD	PRESSURE DROP (FEET OF WATER)
PRV	PRESSURE REDUCING VALVE
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PT	PRESSURE / TEMPERATURE PORT
RA	RETURN AIR
RH	RELATIVE HUMIDITY
REQD	REQUIRED
REL.A	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE
RS	ROOF SUMP
SA	SUPPLY AIR
SH	SHOWER
SP	STATIC PRESSURE
SqFt / SF	SQUARE FOOT/SQUARE FEET
SS	SERVICE SINK
TC	TEMPERATURE CONTROL
T & P	TEMPERATURE AND PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
UR	URINAL
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VTR	VENT THRU ROOF
W	WASTE
W&V	WASTE AND VENT
WB	WET BULB TEMPERATURE
WC	WATER CLOSET
WG	WATER GAUGE
WH	WALL HYDRANT

MECHANICAL PIPING SYMBOLS

ABBREV.	DESCRIPTION
	PIPE ELBOW UP
	PIPE ELBOW DOWN
	PIPE TEE DOWN
	DIRECTION OF FLOW
	UNION
	STRAINER
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	EXPANSION JOINT
	FLEXIBLE CONNECTION
	PIPE ANCHOR
	PIPE GUIDE
	PIPE CAP OR PLUG
	ISOLATION VALVE
	CIRCULATING PUMP
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	ANGLE VALVE
	CHECK VALVE (SWING)
	CHECK VALVE (SPRING)
	PLUG VALVE
	NEEDLE VALVE
	OUTSIDE SCREW AND YOKE VALVE (OS&Y)
	PRESSURE REGULATING VALVE
	SOLENOID VALVE
	CONTROL VALVE (2-WAY / 3-WAY)
	CENTRIFUGAL FAN
	AUTOMATIC GAS SHUT-OFF VALVE
CG	TRAP (PLAN VIEW)
	FLOOR DRAIN / FUNNEL FLOOR DRAIN (PLAN VIEW)
	FLOOR DRAIN / FUNNEL FLOOR DRAIN (ELEVATION)
	ROOF SUMP
CO	CLEAN OUT (IN FLOOR)
CO	CLEAN OUT (IN LINE)
WCO	CLEAN OUT (WALL)
BFP	BACKFLOW PREVENTER
M	WATER METER ASSEMBLY
	HOSE BIBB, WALL HYDRANT
	DIRECTION OF PIPE PITCH
	SPRINKLER HEAD (UPRIGHT)
	SPRINKLER HEAD (SIDEWALL)
FS	FLOW SWITCH
	SIAMESE CONNECTION (YARD)
	SIAMESE CONNECTION (WALL MOUNTED)
	FIRE HYDRANT
	FLOW MEASURING DEVICE
	BALANCING VALVE
	COMBINATION FLOW MEASURING AND BALANCING DEVICE
AAV	AUTOMATIC AIR VALVE
MAV	MANUAL AIR VALVE

MECHANICAL SYMBOLS

ABBREV.	DESCRIPTION
	RECTANGULAR TAKE-OFF (SINGLE LINE)
	RECTANGULAR TAKE-OFF (DOUBLE LINE)
	ROUND TAKE-OFF (SINGLE LINE)
	ROUND TAKE-OFF (DOUBLE LINE)
	SPIN-IN FITTING (WITH VOLUME DAMPER)
	ELBOW (WITH TURNING VANES)
	RADIUS RECTANGULAR ELBOW
	RADIUS ROUND ELBOW
	RECTANGULAR ELBOW UP
	ROUND ELBOW UP
	RECTANGULAR ELBOW DOWN
	ROUND ELBOW DOWN
	CONCENTRIC TRANSITION (DOUBLE LINE)
	CONCENTRIC TRANSITION (SINGLE LINE)
	ECCENTRIC TRANSITION (DOUBLE LINE)
	ECCENTRIC TRANSITION (SINGLE LINE)
R	INCLINED RISE IN DIRECTION OF AIR FLOW (DOUBLE LINE)
R	INCLINED RISE IN DIRECTION OF AIR FLOW (SINGLE LINE)
D	INCLINED DROP IN DIRECTION OF AIR FLOW (DOUBLE LINE)
D	INCLINED DROP IN DIRECTION OF AIR FLOW (SINGLE LINE)
	FLEXIBLE CONNECTION
	FLEXIBLE DUCT CONNECTION TO SUPPLY DIFFUSER
	SUPPLY DIFFUSER
	LINEAR SLOT DIFFUSER
	RETURN OR EXHAUST GRILLE
	TRANSFER GRILLE
	CROSS SECTION OF SUPPLY AIR DUCT
	CROSS SECTION OF EXHAUST OR RETURN AIR DUCT
EXISTING / NEW	FIRE DAMPER (HORIZONTAL)
EXISTING / NEW	FIRE DAMPER (VERTICAL)
EXISTING / NEW	SMOKE DAMPER
EXISTING / NEW	COMBINATION FIRE/SMOKE DAMPER (VERTICAL)
EXISTING / NEW	COMBINATION FIRE/SMOKE DAMPER (HORIZONTAL)
	VOLUME DAMPER (MANUALLY ADJUSTABLE)
M	MOTORIZED DAMPER
SD	SMOKE DETECTOR
CO2	CO2 SENSOR
T	THERMOSTAT OR TEMPERATURE SENSOR
H	HUMIDISTAT OR HUMIDITY SENSOR
	RETURN OR EXHAUST / SUPPLY AIR FLOW

PIPING LEGEND

ABBREV.	DESCRIPTION
CA	COMPRESSED AIR PIPING
CD	CONDENSATE DRAIN PIPING
DT	DRAIN TILE
F	FIRE PROTECTION PIPING
FOR	FUEL OIL RETURN PIPING
FOS	FUEL OIL SUPPLY PIPING
G	NATURAL GAS PIPING
BCW	BOOSTED-DOMESTIC COLD WATER PIPING
BHW	BOOSTED-DOMESTIC HOT WATER PIPING
CW	DOMESTIC COLD WATER PIPING
NPCW	NON POTABLE COLD WATER PIPING
TW	TEMPERED WATER PIPING
HW	DOMESTIC HOT WATER PIPING
HW(140°F)	DOMESTIC 140°F HOT WATER PIPING
HWR	DOMESTIC HOT WATER RETURN PIPING
SAN	SANITARY WASTE PIPING
PSAN	PUMPED SANITARY PIPING
V	VENT PIPING
ST	STORM SEWER PIPING
PST	PUMPED STORM PIPING
RC	RAIN CONDUCTOR PIPING
ORC	OVERFLOW RAIN CONDUCTOR PIPING
CHWR	CHILLED WATER RETURN PIPING
CHWS	CHILLED WATER SUPPLY PIPING
CWR	CONDENSER WATER RETURN PIPING
CWS	CONDENSER WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
HHWS	HEATING HOT WATER SUPPLY PIPING
HPLR	HEAT PUMP LOOP RETURN PIPING
HPLS	HEAT PUMP LOOP SUPPLY PIPING
RL	REFRIGERANT LIQUID PIPING
RS	REFRIGERANT SUCTION PIPING
HGB	HOT GAS BY-PASS PIPING
GXHR	GEO HEAT EXCHANGE RETURN
GXHS	GEO HEAT EXCHANGE SUPPLY
STM	STEAM PIPING
HPS	HIGH PRESSURE STEAM PIPING
LPS	LOW PRESSURE STEAM PIPING
CR	STEAM CONDENSATE RETURN PIPING
PCR	PUMPED STEAM CONDENSATE RETURN PIPING
LPC	LOW PRESSURE CONDENSATE PIPING
HPC	HIGH PRESSURE CONDENSATE PIPING
MA	MEDICAL AIR PIPING
N	NITROGEN GAS PIPING
O2	OXYGEN GAS PIPING
VAC	VACUUM PIPING

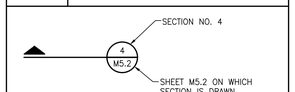
APPLICABLE CODES AND REGULATIONS

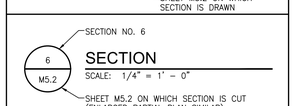
YEAR	CODE
2015	MICHIGAN BUILDING CODE
2015	MICHIGAN PLUMBING CODE
2015	MICHIGAN MECHANICAL CODE
2015	MICHIGAN UNIFORM ENERGY CODE
2015	INTERNATIONAL FIRE CODE
2015	INTERNATIONAL FUEL GAS CODE
2009	ICC/ANSI ACCESSIBLE AND USABLE BUILDING & FACILITIES
-	AMERICANS WITH DISABILITIES ACT ACCESSIBILITIES GUIDELINE (ADA-AG)

DRAWING INDEX

DRAWING NOTATION

SYMBOL	DESCRIPTION
1	NEW WORK KEY NOTE NO. 1
1	DEMOLITION KEY NOTE NO. 1
EF-1	EQUIPMENT DESIGNATION, (IE: EXHAUST FAN NO. 1)
S-1 8ø 100	AIR TERMINAL TAG: S = SUPPLY, R = RETURN, E = EXHAUST IE: DIFFUSER TYPE = S-1 NECK SIZE = 10"x10" CFM = 100 (TYPICAL FOR 2)
	EXISTING DEVICES OR EQUIPMENT
	NEW OR MODIFIED DEVICES OR EQUIPMENT
	EXISTING SYSTEM COMPONENT TO BE REMOVED
	POINT OF NEW CONNECTION





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VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

MECHANICAL GENERAL INFORMATION

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: GK
CHECKED BY: NCS

REVISIONS:
CONSTRUCTION SET 09/25/18

DATE: 03/21/18

SHEET NO.:
M0.0

JOB NO.:
161675

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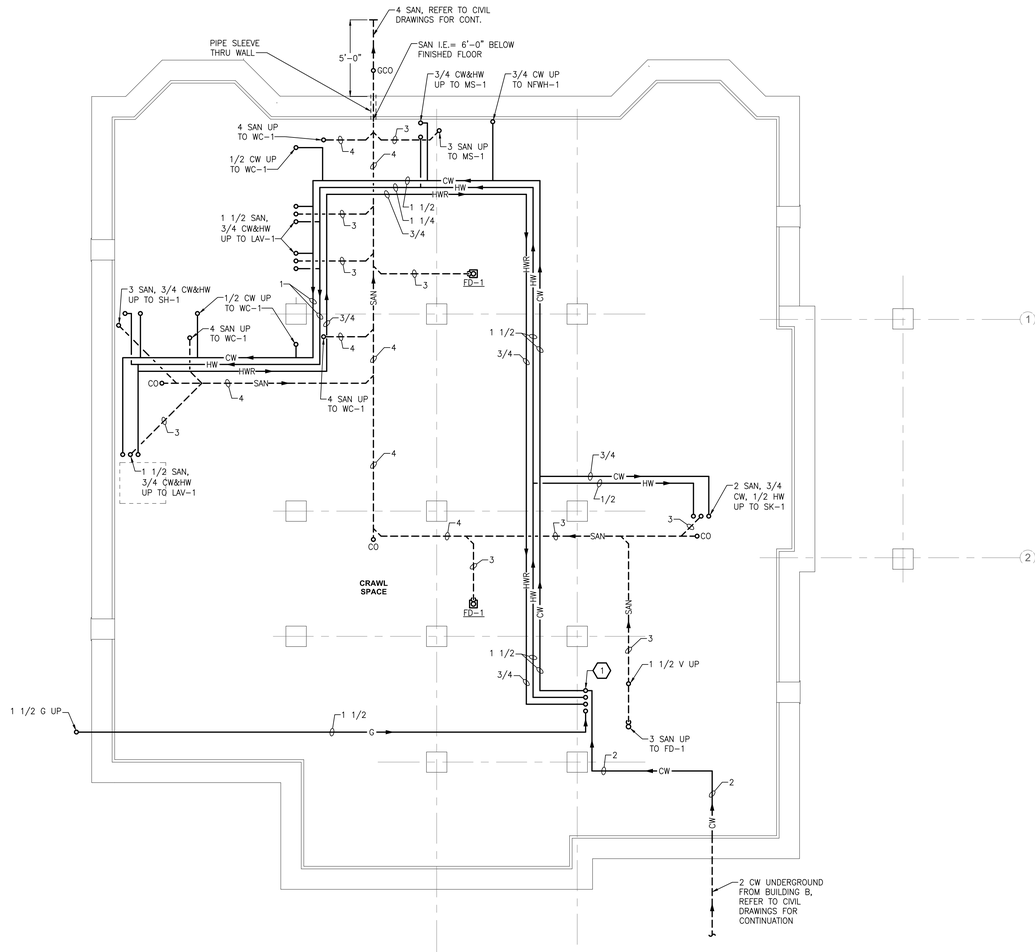

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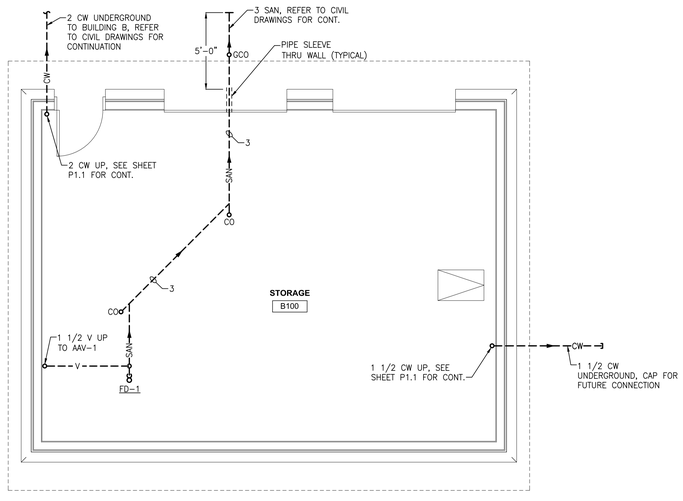
CRAWL SPACE PLAN - PLUMBING

SCALE: 1/4" = 1'-0"



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UNDERGROUND PLUMBING PLAN STORAGE BUILDING

SCALE: 1/4" = 1'-0"

PLUMBING GENERAL NOTES

1. THESE DRAWINGS ARE DIAGRAMMATIC & INDICATE THE GENERAL EXTENT OF THE WORK. PROVIDE PLUMBING SYSTEMS COMPLETE AND PER APPLICABLE CODES INCLUDING REQUIRED COMPONENTS, OFFSETS REQUIRED TO AVOID THE STRUCTURE, ETC.
2. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS AND EXACT LOCATIONS OF FIXTURES (STANDARD AND BARRIER FREE), SINKS, ETC. REFER TO PLUMBING FIXTURE SCHEDULE FOR CONNECTION SIZES, ACCESSORIES, AND ADDITIONAL INFORMATION.
3. PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AND COMPLY WITH STATE ENERGY STANDARDS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE STATE AND LOCAL COUNTY DEPARTMENT OF HEALTH CROSS CONTAMINATION CODE REQUIREMENTS.
4. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING AND PIPING WITH THE WORK OF ALL OTHER TRADES.
5. PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT/ABOVE OF ELECTRICAL EQUIPMENT. PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
6. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS.
7. CONTRACTOR SHALL PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL MECHANICAL SYSTEMS.
8. HOT AND COLD WATER PIPING RUN-OUTS TO LAVS AND SINKS SHALL BE 3/4" UNLESS NOTED OTHERWISE. REFER TO SPECIFICATIONS FOR FIXTURE CONNECTION SIZES. PROVIDE BRANCH LINE ISOLATION VALVES ON DOMESTIC PIPING TO EACH GROUP OF FIXTURES AND TOILET ROOMS. PROVIDE FULL OPEN VALVES PER PLUMBING CODE.
9. PLUMBING VENT PIPING THRU THE ROOF SHALL BE LOCATED 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
10. PROVIDE CODE REQUIRED CLEARANCE/ACCESS DOORS FOR VALVES/CLEANOUTS LOCATED IN WALLS OR ABOVE HARD CEILINGS, AND LOCATIONS OF CLEANOUTS INSTALLED IN STORM AND SANITARY PIPING. COORDINATE LOCATIONS WITH ARCHITECT. PROVIDE CLEANOUTS AT THE BASE OF ALL STACKS.
11. RUN ALL SANITARY AND STORM PIPING 2-1/2" OR LESS AT 1/4" PER FOOT AND 3"-10" PIPING AT 1/8" PER FOOT MINIMUM. UNLESS OTHERWISE NOTED MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
12. PROVIDE "SURESEAL" TRAP SEAL PROTECTION ON ALL FLOOR DRAINS AND TRAPS SUBJECT TO EVAPORATION.
13. ALL CORING THRU WALLS, ROOF AND FLOORS SHALL BE BY MECHANICAL CONTRACTOR. COORDINATE LOCATIONS/SIZES OF ALL FLOOR, WALL PENETRATIONS, AND SLEEVES WITH STRUCTURAL/ARCHITECTURAL TRADES AND SEAL PER SPECIFICATIONS.
14. PROVIDE A UNIONS, ISOLATION VALVE, TEE AND MIN. 6" LONG DIRT LEG WITH CAP AT EACH GAS SUPPLY CONNECTION.

KEYED NOTES

1. 1 1/2 CW & HW, 3/4 HWR, 1 1/2 G UP. SEE SHEET P1.1 FOR CONTINUATION.

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CRAWL SPACE PLAN - PLUMBING

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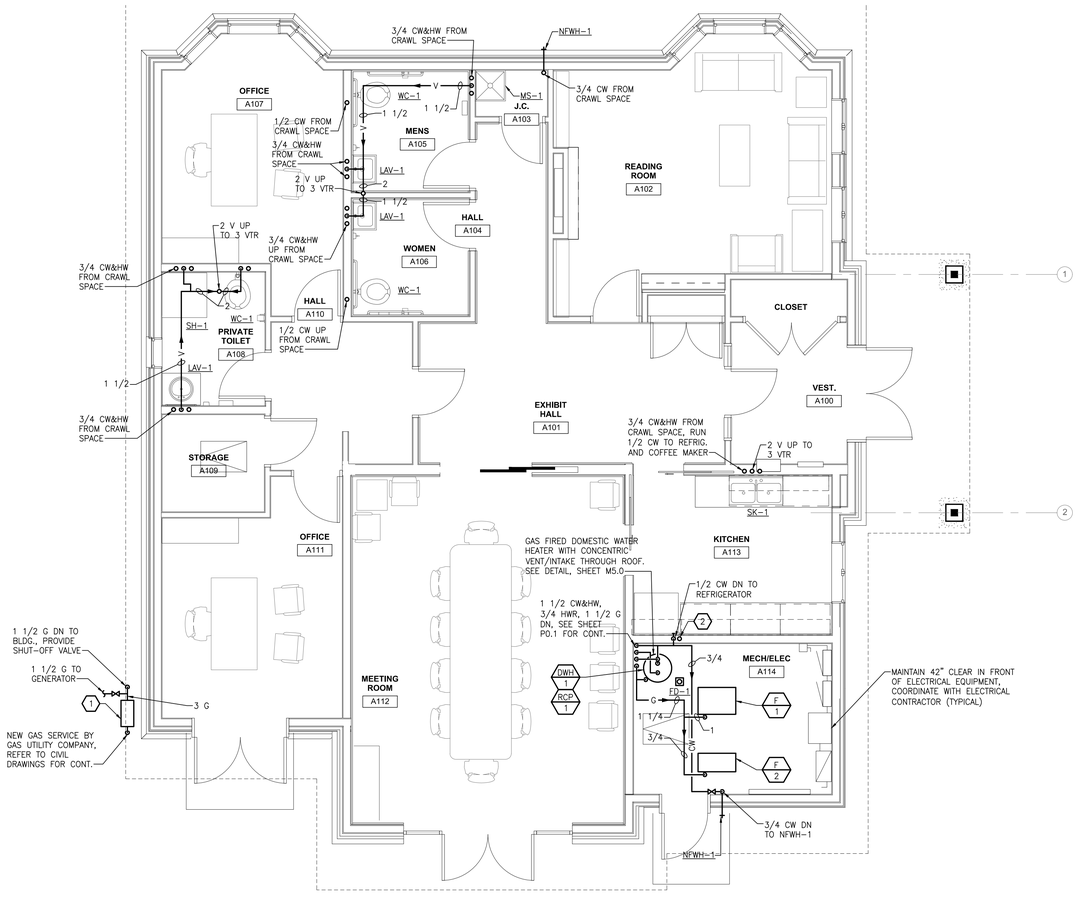
0 1/2" 1" 2"
ACCURATE WHEN PRINTED TO SCALE



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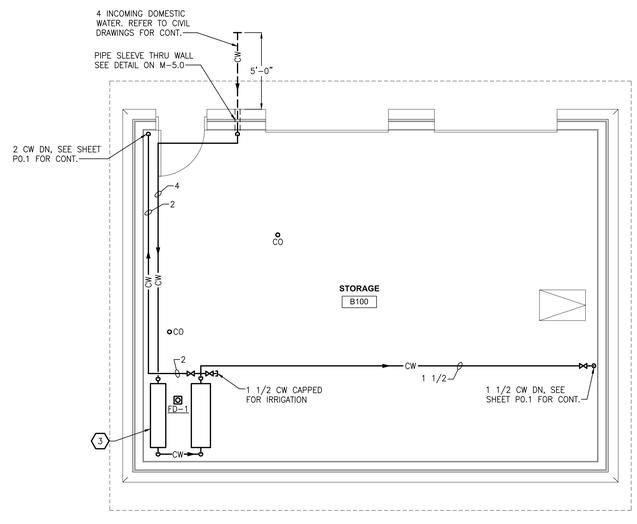
FIRST FLOOR PLAN - PLUMBING

SCALE: 1/4" = 1'-0"



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FLOOR PLAN STORAGE BUILDING - PLUMBING

SCALE: 1/4" = 1'-0"

PLUMBING GENERAL NOTES

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14. PROVIDE A UNIONS, ISOLATION VALVE, TEE AND MIN. 6" LONG DIRT LEG WITH CAP AT EACH GAS SUPPLY CONNECTION.

KEYED NOTES

1. NEW GAS METER AND PRESSURE REGULATORS BY GAS UTILITY COMPANY. TOTAL CONNECTED LOAD IS 1,505 CFH, OUTLET PRESSURE FROM NEW REGULATOR IS 1/4 PSI (7" W.C.).
2. 1 1/2 V UP TO ACCESSIBLE AIR ADMITTANCE VALVE, AAV-1.
3. NEW DOMESTIC WATER METER AND BACKFLOW PREVENTERS, SEE DETAIL, SHEET M5.0.

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FIRST FLOOR PLAN - PLUMBING

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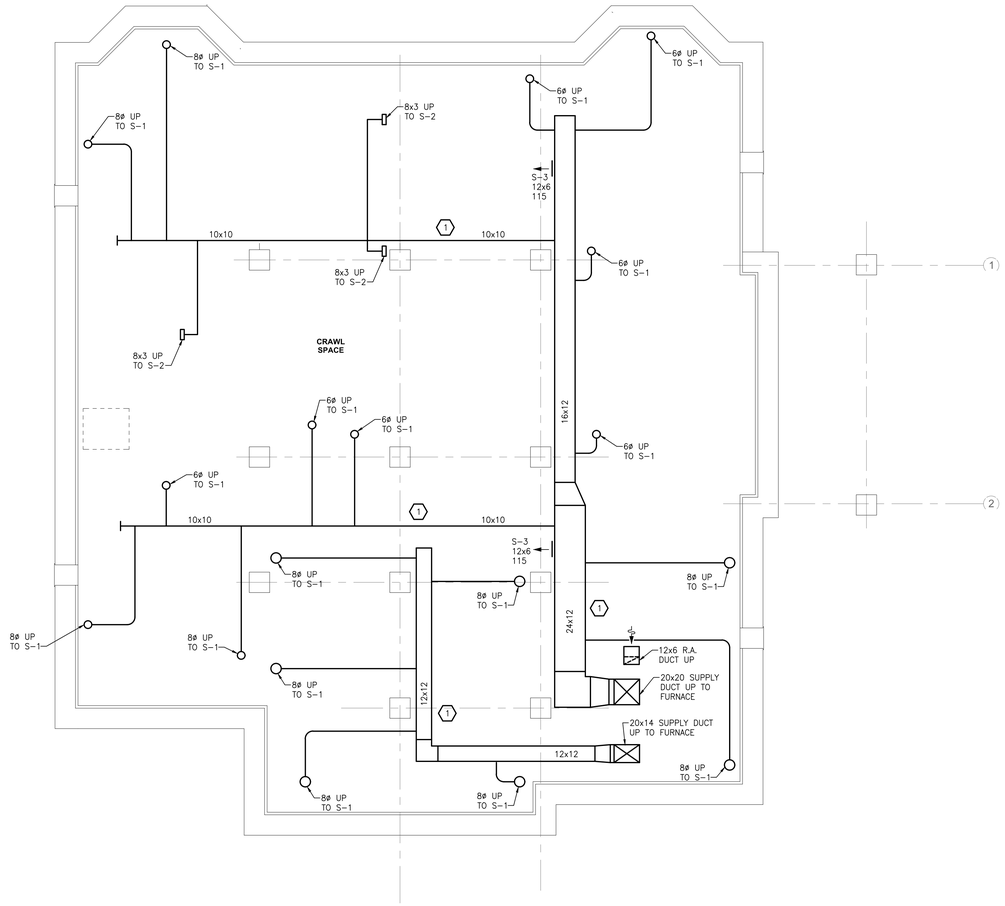

N 1 E1.1 CRAWL SPACE PLAN - HVAC
SCALE: 1/4" = 1'-0"

HVAC GENERAL NOTES

1. THESE DRAWINGS ARE DIAGRAMMATIC & INDICATE THE GENERAL EXTENT OF THE WORK. PROVIDE SHEET METAL SYSTEMS COMPLETE PER SPECIFICATION, SMACNA STANDARDS, AND PER APPLICABLE CODES INCLUDING ALL NECESSARY OFFSETS, FITTINGS, SPECIAL RADIUS OR MITERED ELBOWS WHICH ARE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS.
2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
3. DUCTWORK SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. DUCTWORK SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
4. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
5. COORDINATE FLOOR, WALL, ROOF PENETRATIONS, LOUVER SIZES, PAD LOCATIONS ETC. WITH ARCHITECTURAL TRADES.
6. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.
7. COORDINATE AND PROVIDE ACCESS DOORS IN HARD CEILING AREAS FOR ACCESS TO BALANCING DAMPERS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
8. BRANCH DUCTWORK TO GRILLES, REGISTERS AND DIFFUSERS SHALL BE THE SAME SIZE AS THE GRILLE, REGISTER OR DIFFUSER NECK SIZE WHERE NO DUCT SIZE IS INDICATED ON PLAN.
9. PAINT ALL VISIBLE INTERIOR SURFACES OF EXHAUST/RETURN GRILLES, REGISTERS AND VISIBLE ASSOCIATED DUCTWORK FLAT BLACK.
10. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".

KEYED NOTES

1. COORDINATE DUCTWORK LAYOUT AND INSTALLATION ELEVATIONS WITH PIPING LAYOUT. DUCTWORK IN CRAWL SPACE TO BE INSULATED, SEE SPECIFICATIONS.

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CRAWL SPACE PLAN - HVAC

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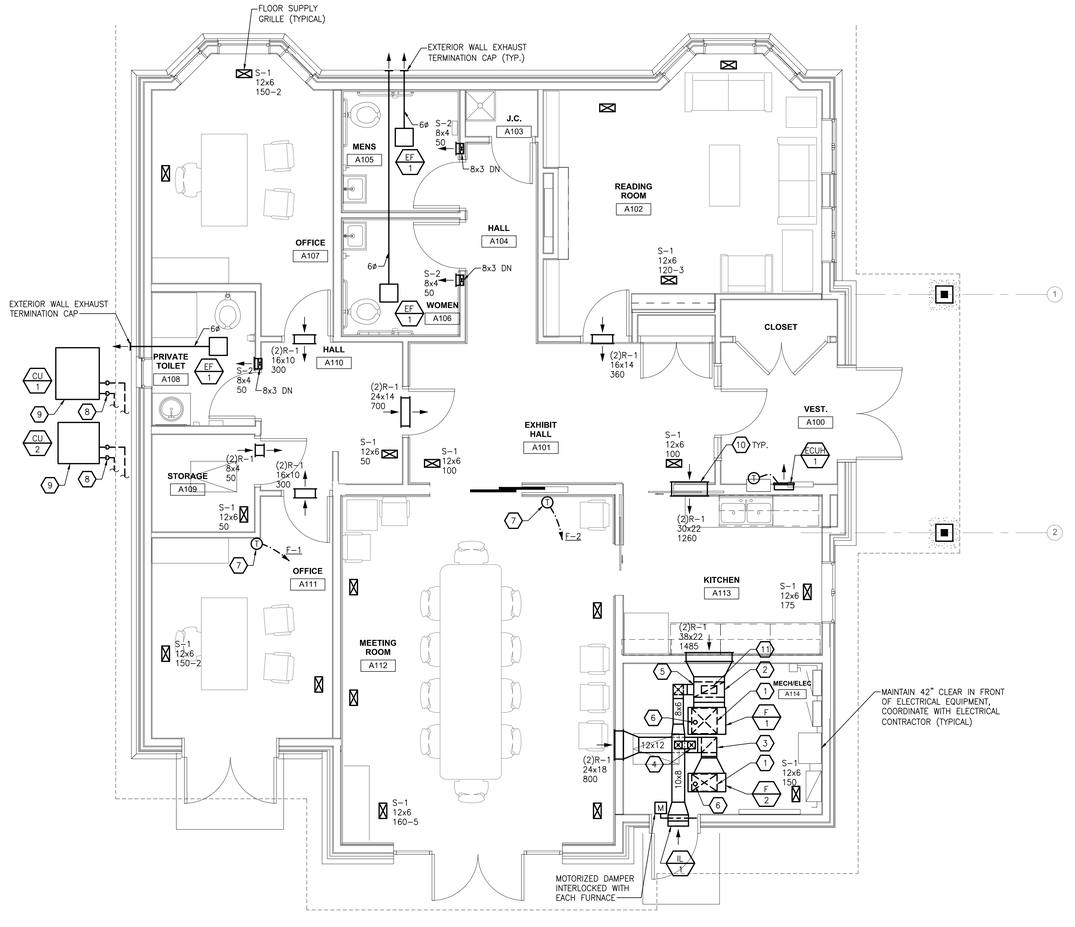

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FIRST FLOOR PLAN - HVAC

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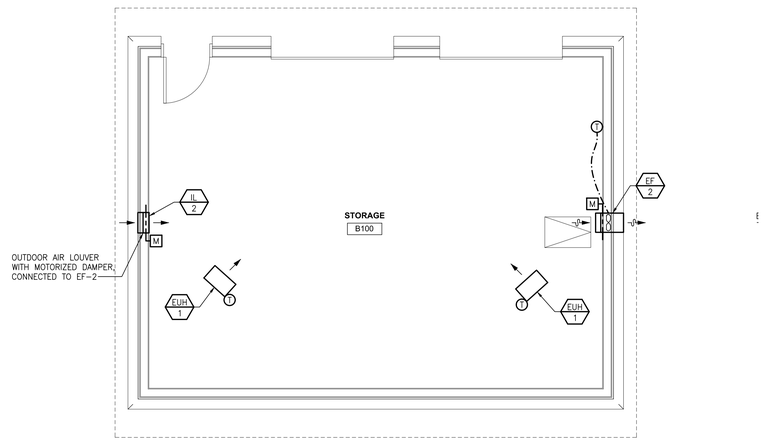

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FLOOR PLAN STORAGE BUILDING - HVAC

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HVAC GENERAL NOTES

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10. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0".

(#) KEYED NOTES

1. SUPPLY AIR DUCT FROM FURNACE DOWN TO CRAWL SPACE. SEE DRAWING M0.1 FOR CONTINUATION.
2. 24x12 RETURN AIR DUCT DOWN TO FURNACE. PROVIDE MOTORIZED DAMPER ON THE RETURN DUCT, INTERLOCKED WITH FURNACE.
3. 12x12 RETURN AIR DUCT DOWN TO FURNACE. PROVIDE MOTORIZED DAMPER ON THE RETURN DUCT, INTERLOCKED WITH FURNACE.
4. 6x6 OUTDOOR AIR DUCT DOWN, CONNECT TO THE RETURN DUCT.
5. 8x6 OUTDOOR AIR DUCT DOWN, CONNECT TO THE RETURN DUCT AS LOW AS POSSIBLE.
6. PROVIDE CONCENTRIC VENT/INTAKE THROUGH ROOF FOR EACH FURNACE. SEE DETAIL, SHEET M5.0. PROVIDE CONDENSATE DRAIN FROM EACH FURNACE, PIPED TO FLOOR DRAIN.
7. SEVEN DAY PROGRAMMABLE THERMOSTAT.
8. INSULATED REFRIGERANT PIPING FROM CONDENSING UNIT DOWN. RUN IN CRAWL SPACE TO EACH FURNACE. SEE DETAIL, SHEET M5.0.
9. INSTALL CONDENSING UNIT ON 4" HIGH CONCRETE PAD. SEE DETAIL, SHEET M5.0.
10. INSTALL ALL RETURN AIR GRILLES AT ELEVATION ABOVE THE DOORS.
11. 12x6 RETURN AIR DUCT FROM CRAWL SPACE TO F-1.

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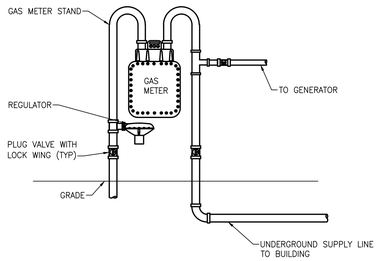
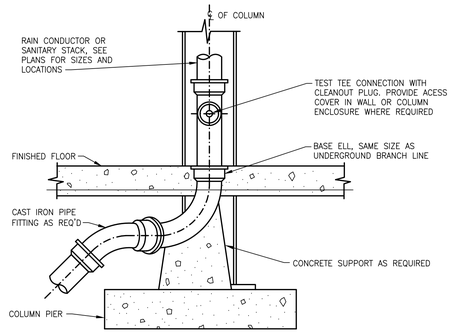


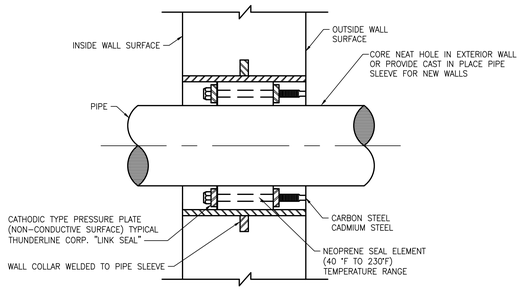
GAS METER WITH UNDERGROUND SUPPLY LINE DETAIL

NO SCALE



TYPICAL BASE CONNECTION FOR STORM AND SANITARY STACKS

NO SCALE



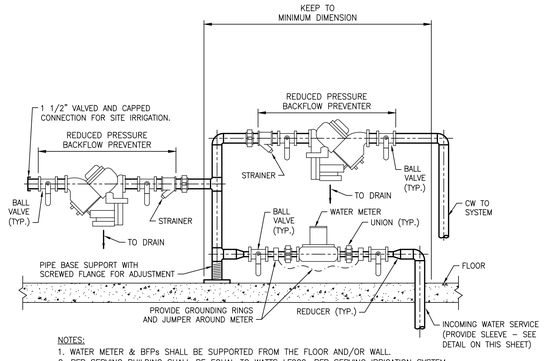
PIPE SLEEVE

1) THE ENTIRE LEAK PROOF PIPE ASSEMBLY CONSISTING OF NEOPRENE ELEMENT. CATHODIC PLATES AND CADMIUM PLATED BOLTS SHALL BE AS MANUFACTURER'S BY THUNDERLINE CORP. WAYNE, MICHIGAN USA.

2) THE LINK SEAL ASSEMBLY SHALL BE INSTALLED AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

TYPICAL EXTERIOR WALL OR FLOOR PIPE SLEEVE DETAIL

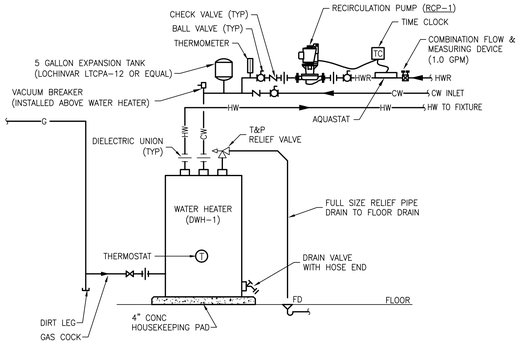
NO SCALE



NOTES:
1. WATER METER & BFPs SHALL BE SUPPORTED FROM THE FLOOR AND/OR WALL.
2. BFP SERVING BUILDING SHALL BE EQUAL TO WATTS LF909. BFP SERVING IRRIGATION SYSTEM SHALL BE EQUAL TO FEBCO (WATTS) 825Y.
3. BACKFLOW PREVENTERS SHALL HAVE INLET & OUTLET BALL VALVES, TEST COCKS & STRAINER.

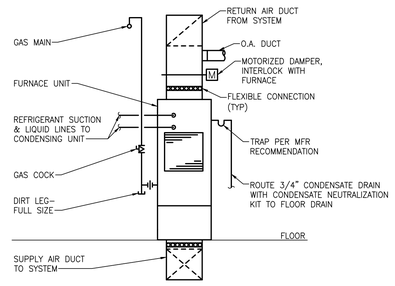
WATER METER / BACKFLOW PREVENTER DETAIL

NO SCALE



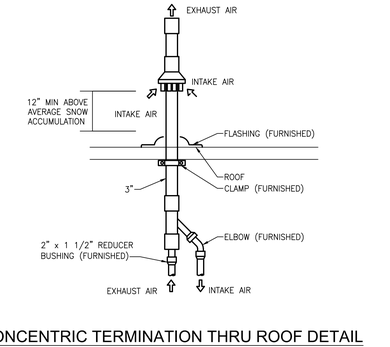
GAS FIRED DOMESTIC WATER HEATER DETAIL

NO SCALE (DWH-1 WITH HW RECIRCULATING PUMP, EXPANSION TANK & AQUASTAT)



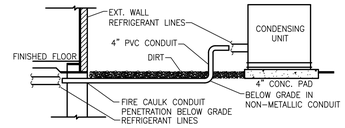
GAS FURNACE DETAIL-FLOOR SUPPLY

NO SCALE



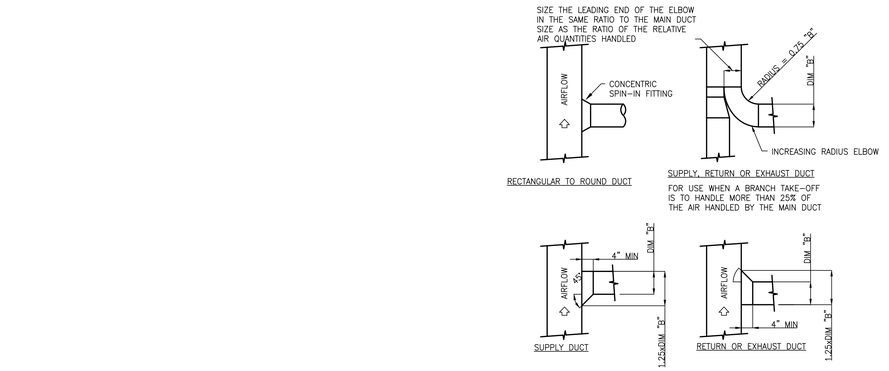
CONCENTRIC TERMINATION THRU ROOF DETAIL

NO SCALE



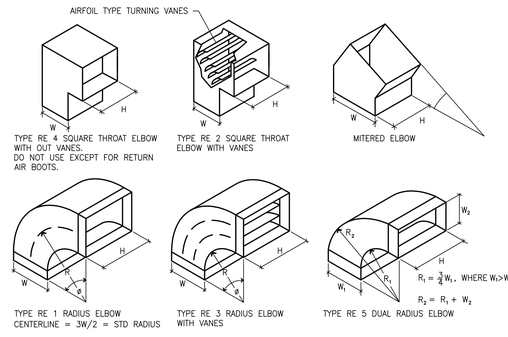
STREET LEVEL CONDENSING UNIT REFRIGERANT PIPING INSTALLATION DETAIL

NO SCALE



RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS

NO SCALE



RECTANGULAR SHEET METAL ELBOWS

NO SCALE

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VAN BUREN TOWNSHIP
DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

MECHANICAL DETAILS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: GK
CHECKED BY: NCS

REVISIONS:
CONSTRUCTION SET 09/25/18

DATE: 03/21/18

SHEET NO.:
M5.0

JOB NO.:
161675

PLUMBING FIXTURE SCHEDULE

TAG	BARRIER FREE	ITEM	PIPE CONNECTION SIZES				MANUFACTURER & MODEL NUMBER	ACCESSORIES
			WASTE	VENT	CW	HW		
AAV-1	–	AIR ADMITTANCE VALVE	–	1 1/2"	–	–	STUDOR: MINI VENT	FOR MOUNTING AAV IN WALL, PROVIDE STUDOR MULTI-PURPOSE RECESS BOX, MODEL 20306
FD-1	–	FLOOR DRAIN	3"	–	–	–	ZURN: Z415B	PROVIDE ROUND TOP WITH NICKEL BRONZE STRAINER AND "SURESEAL" INLINE TRAP SEALER
LAV-1	Y	WALL MOUNTED LAVATORY	1 1/2"	1 1/2"	1/2"	1/2"	MANSFIELD "GRAND ISLE" 2018HBNS	DELTA FAUCET, TRINSIC COLLECTION, MODEL 559-LF-MPU, 1.5 GPM
MS-1	–	MOP SINK	3"	1 1/2"	3/4"	3/4"	FIAT MSBID2424	FIAT MODEL 889CC MOP HANGER AND MODEL 832AA HOSE & HOSE BRACKET, "CHICAGO" FAUCET MODEL 897 CRCF W/ INTEGRAL CHECKS & STOPS
NFWH-1	–	NON-FREEZE WALL HYDRANT	–	–	3/4"	–	WOODFORD MODEL 65	PROVIDE 3/4" INLET
SH-1	Y	SHOWER	3"	1 1/2"	1/2"	1/2"	AQUATIC SHOWER MODEL 1603COS	DELTA R10000-UNWS UNIVERSAL VALVE, & DELTA T13220 SHOWER FAUCET, 2.0 GPM (VALVE TO BE ASSE 1016 COMPLIANT)
SK-1	Y	UNDERMOUNT SINGLE COMP. SINK	2"	1 1/2"	1/2"	1/2"	ELKAY MODEL ELUHAD2816, SS	DELTA FAUCET, LINDEN SERIES, MODEL 4353-DST, 1.5 GPM, GARBAGE DISPOSAL: INSINKERATOR, MODEL LC-50, 1/2 HP.
WC-1	Y	FLOOR MOUNTED FLUSH TANK WATER CLOSET	4"	2"	1/2"	–	KOHLER: CIMARRON K-3619-0	COMFORT HEIGHT, TANK TYPE 1.28 GPF, BEMIS MODEL 170 TOILET SEAT

NOTES:

1. SUPPLY ALL FIXTURES WITH LOOSE KEY STOPS.
2. PROVIDE ALL ACCESSORIES NECESSARY FOR A COMPLETE AND OPERABLE INSTALLATION.
3. PROVIDE CARRIERS FOR ALL APPLICABLE FIXTURES PER MANUFACTURER'S RECOMMENDATIONS.
4. WHERE REQUIRED AND WHERE DESIGNATED, FIXTURES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE TO THE BARRIER FREE DESIGN PA1 OF 1966 & ICC/ANSI A117.1.
5. MV-1: ZURN ZW3870XLT TEMPERING VALVE, ASSE 1070 & LEAD LAW COMPLIANT. PROVIDE AT EACH PUBLIC HANDWASHING FACILITY AND ACCESSIBLE FIXTURE.
6. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION/MOUNTING HEIGHT OF ALL FIXTURES.
7. VERIFY ALL COLORS AND FINISHES WITH ARCHITECT.
8. PROVIDE "SURESEAL" INLINE TRAP SEALER FOR EACH FLOOR DRAIN, FLOOR SINK OR TRAP SUBJECT TO EVAPORATION LOSS.

LOUVER SCHEDULE

TAG	AREA SERVED	ASSOCIATED EQUIPMENT	DUTY	CFM	OVERALL SIZE (L x H)	FREE AREA (SQ. FT.)	S.P. (IN. WG)	MAX. S.P. (IN. WG)	FREE AREA VELOCITY (FPM)	MAX. FREE AREA VELOCITY (FPM)	GREENHECK MODEL NUMBER	NOTES
IL-1	HVAC A114	F-1/F-2	INTAKE	280	16"x16"	0.66	0.02	0.04	326	500	ESD-403	1, 2, 4, 5
IL-2	STORAGE B100	EF-2	INTAKE	600	20x20"	0.74	0.02	0.04	326	500	EAC-401	1, 2, 4, 5

NOTES:

1. PROVIDE INTERNAL BIRD SCREEN
2. CHANNEL FRAME WITH EXTENDED SILL. FINISH/COLOR BY ARCH.
3. FLANGED FRAME. FINISH/COLOR BY ARCH.
4. COMBINATION LOUVER/DAMPER
5. 24V MOTORIZED DAMPER TO BE INTERLOCKED WITH ASSOCIATED EQUIPMENT, AND WHERE APPLICABLE, WITH INTAKE COMBINATION LOUVER/DAMPER(S) PROVIDED BY ARCH. TRADES.

PUMP SCHEDULE

UNIT ID	SERVICE	ASSOCIATED EQUIPMENT	TYPE	GPM	HEAD (FT)	MIN % EFF	MOTOR BHP	HP	RPM	VOLTS	PHASE	BELL & GOSSETT MODEL NO.	NOTES
RCP-1	DOMESTIC HOT WATER RECIRC.	DWH-1	INLINE	6.5	18	–	–	270 W	3300	120	1	NBF-36	1 – 4

NOTES:
1. PERFORMANCE BASED ON WATER.
2. PUMP SHALL BE NON-OVERLOADING.
3. ELECTRICAL TRADES SHALL PROVIDE DISCONNECT.
4. PROVIDE LEAD FREE ALL BRONZE RECIRCULATING PUMP.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

UNIT ID	FACE SIZE	NECK SIZE	MOUNTING	ACCESSORY	FINISH	MATERIAL	MANUFACTURER	MODEL NO.	REMARKS
S-1	NECK+2"	SEE PLANS	FLOOR	–	WHITE	STEEL	HART & COOLEY	421	HEEL PROOF TYPE
S-2	NECK+2"	SEE PLANS	SIDEWALL	–	WHITE	STEEL	PRICE	520	
S-3	NECK+2"	SEE PLANS	DUCT	–	WHITE	STEEL	PRICE	510	
R-1	NECK+2"	SEE PLANS	SIDEWALL	–	WHITE	STEEL	PRICE	535	45° DEFLECTION, 1/2" SPACING

NOTES:

1. REFER TO ARCHITECTURAL PLANS AND COORDINATE FRAME TYPE ACCORDINGLY.

FAN SCHEDULE

UNIT ID	SERVING	MOUNTING	CFM	STATIC PRESSURE	HP	BHP	VOLTS/PH	DRIVE	MOTOR RPM	FAN RPM	GREENHECK MODEL NO.	ASSOCIATED EQUIPMENT	NOTES
EF-1	TOILET ROOMS	CEILING	75	0.25	15 W	0.01	120/1	DIRECT	–	994	SP-A125	–	1
EF-2	STORAGE B100	SIDEWALL	600	0.3	1/4	0.17	120/1	DIRECT	1725	1356	SE1-16-436-VG	EXHAUST LOUVER & INTAKE COMB. LOUVER/DAMPER(S)	2 – 4

NOTES:

1. PROVIDE DISCONNECT, MOTOR WITH THERMAL OVERLOAD, BACKDRAFT DAMPER, SPEED CONTROLLER MOUNTED IN FAN HOUSING, DESIGNER GRILLE, VIBRATION ISOLATION KIT AND ROUND HOODED WALL CAP WITH ROUND DUCT CONNECTOR. ON/OFF SWITCH BY ELECTRICAL TRADES. EXHAUST FAN TO BE CONTROLLED BY LIGHT SWITCH.
2. PROVIDE MOTORIZED DAMPER WITH 24 VAC ACTUATOR CONTROL. INTERLOCK FAN WITH ASSOCIATED LOUVER(S)/MOTORIZED DAMPER(S).
3. PROVIDE DISCONNECT, MOTOR WITH THERMAL OVERLOAD, LONG WALL HOUSING WITH OSHA GUARD AND VARI-GREEN EC MOTOR W/ MOUNTED POTENTIOMETER DIAL.
4. TEMPERATURE SENSOR SET TO 75°F (ADJUSTABLE).

ELECTRIC CABINIET UNIT HEATER SCHEDULE

UNIT ID	MBH	KW	CFM	ELECTRICAL			PHYSICAL SIZE (INCHES)			MOUNTING	QMARK MODEL NO.	NOTES
				VOLTS	PHASE	AMPS	LENGTH/ HEIGHT	WIDTH	DEPTH			
ECUH-1	6.8	2	100	208	1	9.6	20	16.0	4.0	RECESSED (WALL)	AWH4408	1 – 2

NOTES:
1. MANUFACTURER TO PROVIDE FACTORY MOUNTED DISCONNECT, SAFETY THERMAL CUTOUTS, FRONT COVER INTERLOCK, FAN DELAY CONTROL, AND INTEGRAL TAMPER RESISTANT THERMOSTAT.
2. PROVIDE ALL ASSOCIATED MOUNTING HARDWARE.

ELECTRIC UNIT HEATER SCHEDULE

TAG	OUTPUT (MBH)	AIRFLOW (CFM)	MINIMUM MOUNTING HEIGHT A.F.F.	ELECTRICAL REQUIREMENTS		QMARK MODEL	SERVES	NOTES
				KW	VOLT/PHASE			
EUH-1	17.0	350	7'-0"	5	208/1	MUH-05-81	STORAGE B100 & C100	–
EUH-2	10.2	350	7'-0"	3	208/1	MUH-03-81	STORAGE C103	–

NOTES:

1. PROVIDE WITH INTERNAL THERMOSTAT AND DISCONNECT.

DOMESTIC WATER HEATER SCHEDULE

UNIT ID	STORAGE CAPACITY (GAL)	FUEL TYPE	INPUT RATE (MBH)	RECOVERY (GPH)	MODEL NO.	REMARKS
DWH-1	50	NAT. GAS	45	50	PRN05045	

NOTES:

1. MODEL NUMBERS ARE LOCHINVAR UNLESS OTHERWISE NOTED.

FURNACE SCHEDULE

UNIT ID	SUPPLY CFM	OA CFM	ESP	BLOWER HP	HEATING SECTION			ELECTRICAL				MODEL NO.	REMARKS
					INPUT (MBH)	OUTPUT (MBH)	EFF AFUE	UNIT AMPACITY	FLA	VOLTS	PHASE		
F-1	1975	180	0.6	1	100	96	96%	14	14	208	1	TM9V100C20MP11	
F-2	800	100	0.5	1/2	40	38	96%	9	9	208	1	TM9V040A10MP11	

NOTES:

1. MODEL NUMBERS ARE YORK UNLESS OTHERWISE NOTED.

CONDENSING UNIT SCHEDULE

UNIT ID	NOMINAL TONNAGE	MINIMUM SEER	ELECTRICAL				FAN		COMPRESSORS		MODEL NO.	REMARKS
			MCA	MAX FUSE SIZE	VOLTS	PHASE	RPM	CFM	NO.	TYPE		
CU-1	5.0	14.5	32.7	50	208	1	850	3750	1	SCROLL	YCG60	
CU-2	2.0	14.5	16.8	25	208	1	1075	2750	1	SCROLL	YCG24	

NOTES:

1. MODEL NUMBERS ARE YORK UNLESS OTHERWISE NOTED.

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SES Project #17 0758 03

LUMINAIRE SCHEDULE

FIXTURE MARK	DESCRIPTION	MANUFACTURER(S)
LA	6" ROUND RECESSED DOWNLIGHT FIXTURE WITH SEMI-SPECULAR SELF FLANGED REFLECTOR AND OPEN SOLID STATE LED LIGHT ENGINE MODULE WITH 1500 LUMENS, 4000K COLOR TEMPERATURE, 80CRI AND MEDIUM BEAM DISTRIBUTION REFLECTOR.	COOPER LIGHTING PORTFOLIO SERIES CAT. #LD6B15 D010 MODULE: EU6B 1500-80-3500K TRIM: 6LB-M-OL1 ACCEPTABLE MANUFACTURER LITHONIA, PRESCOLITE
LB	SAME AS TYPE LA EXCEPT WIDE DISTRIBUTION REFLECTOR.	HOUSING: LD6B15 MODULE: EU6B 1500-80-3500K TRIM: 6LB-M-OL1
LC	6" ROUND RECESSED ADJUSTABLE DOWNLIGHT FIXTURE WITH SEMI-SPECULAR SELF FLANGED REFLECTOR OPEN SOLID STATIC LED LIGHT ENGINE MODULE WITH 1500 LUMENS.	COOPER LIGHTING PORTFOLIO SERIES CAT. #LD6B15D010 (ADJUSTABLE)
LD	SAME AS TYPE LA EXCEPT WITH 2000 LUMENS, WIDE DISTRIBUTION, SPECIAL HOUSING FOR ANGLED (SLOPED) CEILING.	HOUSING: LD6B20MODULE: EU6B 1500-80-2000K TRIM: 6LB-M-OL1 HSA6-SLOPE ADAPTER
LE	SAME AS TYPE LA EXCEPT WITH 1000 LUMENS, SUITABLE FOR WET LOCATION SHOWER STALL.	HOUSING: LD6B15 MODULE: EU6B 1000-80-3500K TRIM: 6LB-M-OL1
LF	INTERIOR PENDANT MOUNTED LANTERN TYPE WITH BEVELED CAGE DESIGN, LARGE OPAL GLASS CYLINDER, THREE (3) CANDELABRA (LED) TYPE LAMPS 3500K COLOR TEMPERATURE AND BRASS FINISH. FIXTURE TO BE MOUNTED 7'-8" TO UNDERSIDE OF FIXTURE FROM FINISHED FLOOR. EXACT OVERALL HEIGHT TO BE APPROVED BY ARCHITECT.	COXSACKIE 3 - LIGHT FOYER PENDANT ONLINE FROM ALL MODERN. PART #TRPT242B
LG	INTERIOR PENDANT MOUNTED LED LUMINAIRE. COMPLETE WITH 36" DIAMETER FABRIC SHADE, NICKEL FINISH, 120V, 0-10V DIMMING DRIVER, 8000 LUMENS, 3500K COLOR TEMPERATURE, WITH OAH=36". NOTE: EXACT OVERALL HEIGHT (OAH) AND FINISH TO BE APPROVED BY ARCHITECT.	SHAPER FIXTURE CAT. # 142-36-PISAC-L9/835-120-CC-NICKEL-TC-360A SHADE CAT. #142-36-SHD-SIY
LH	INDIRECT COVE LIGHT FIXTURE, WITH 300LM/FT 80CRI, 3500K, 120V, AND WHITE FINISH. NOTE: CONTRACTOR TO FIELD VERIFY EXACT LENGTH OF ARCHITECTURAL COVE PRIOR TO COMMITMENT PURCHASE. PROVIDE ALL CONNECTOR AND POWER FEEDS.	AXIS LIGHTING CAT. #CCL-SL-300LMFT-80-35-W-120-DP-1-C OR APPROVED EQUAL
LJ	1" SQUARE LED UNDERCOUNTER WITH INTEGRAL ELECTRONIC DRIVER, SLIM DRIVER, EXTRUDED ALUMINUM HOUSING, WHITE FINISH, PREMIUM DIFFUSER COVER, DIMMABLE, 75 LUMENS/WATT 0-90° ADJUSTABLE MOUNTING BRACKETS. CONTRACTOR TO VERIFY FINAL CABINET LAYOUT.	ALLOY LED CAT. #AL-10-01-WH OR APPROVED EQUAL
LK	4FT LED STRIP LIGHT WITH 5500 LUMEN, 4000K 120V AND DIFFUSED LENS.	PHILIPS FLUX STREAM STRIP CAT. #FSS-4'-55L-840-120-DIM OR APPROVED EQUAL
LK1	SAME AS LK EXCEPT 2FT LENGTH.	PHILIPS FLUX STREAM STRIP CAT. #FSS-2'-30L-840-120-DIM OR APPROVED EQUAL
LM	LED COACH LIGHTS SELECTED BY ARCHITECT/OWNER	
X	LED EXIT LIGHT, UNIVERSAL MOUNTING, SINGLE FACE DIECAST ALUMINUM BLACK HOUSING WITH BRUSHED ALUMINUM FACE, 6" HIGH RED LETTERS, AND LED LAMPS. 120V OPERATION, MAINTENANCE FREE CADMIUM BATTERY AND SOLID STATE CHARGING SYSTEM.	LITHONIA CAT. #LES-1R-120 OR BY ACCEPTABLE MANUFACTURER DUAL-LITE, EXIDE
OA	DECORATIVE POST-TOP STYLE LED LUMINAIRE GRANDVILLE II LED (DOUBLE HEAD). 100W, 4000K 120V TYPE 5 DISTRIBUTION, 10889 LUMENS PER LAMP, FLUTED SHAFT CAST IRON POST (15 FEET) WITH, 20A, WP DUPLEX RECEPTACLE, BANNER ARM, SEMI BLACK WITH POLYESTER POWDER FINISH. SEE DETAIL ON SHEET ES1.1.	HOLOPHANE CAT. #GVD2 P50 40K ASF BK 5 OR APPROVED EQUAL
OB	SAME AS TYPE OA EXCEPT WITH SINGLE HEAD. SEE DETAIL ON SHEET ES1.1.	HOLOPHANE CAT. #GVD2 P50 40K ASF BK 5 OR APPROVED EQUAL
OC	LED BOLLARD LUMINAIRE WITH 360° DEGREE SYMMETRICAL DISTRIBUTION, 18.4 W, -30°C START TEMPERATURE, INTEGRAL 120V ELECTRONIC LED DRIVE, 881 LUMENS DIE-CAST ALUMINUM AND BORDSILLICATE GLASS. SEE DETAIL ON SHEET ES1.1	BEGA CAT. #99577 OR APPROVED EQUAL
OC1	SAME AS TYPE "OC1" EXCEPT WITH INTEGRAL FLOODLIGHT. SEE DETAIL ON SHEET ES1.1.	BEGA CAT. #99577 OR APPROVED EQUAL CAT. #99644 (FLOODLIGHT)/10047
OD1	DECORATIVE POST-TOP STYLE LUMINAIRE GRANDVILLE MINI, 120V, 2000 LUMEN SCREW IN BASE LED LAMP, CAST ALUMINUM PIER MOUNTING BASE, STANDARD FINIAL, DECORATIVE BAND, SEMI BLACK WITH POLYESTER POWDER FINISH. REFER TO ARCHITECTURAL DRAWINGS FOR PIER DETAIL.	HOLOPHANE LUMINAIRE CAT. #MGV-20IN-12-L-B-5-4-B OR APPROVED EQUAL PIER MOUNT BASE THE ANCHOR BASE SHALL HAVE TWO (2) 1" SLOTS FOR MOUNTING TO PIER OR WALL. THE ANCHOR BASE COVER SHALL FIT OVER THE 1/4" DIA. SOCKET SET SCREWS. THE COVER SHALL HAVE A 3" HIGHx3"O.D. TENON FOR LUMINAIRE MOUNTING.
OD	SAME AS TYPE "OD1" EXCEPT EQUIPPED WITH CAST ALUMINUM WALL BRACKET FOR WALL MOUNT.	HOLOPHANE LUMINAIRE CAT. #MGV-20IN-12-L-B-5-4-B OR APPROVED EQUAL WALL BRACKET CAT. #AWB-CA/BK

LUMINAIRE SCHEDULE GENERAL NOTES

1. REFER TO ELECTRICAL SPECIFICATIONS FOR MORE INFORMATION.
2. ALL LIGHT FIXTURES SHALL BE UL LABELED.
3. FIRST MANUFACTURER LISTED IS BASIS OF DESIGN. OTHER MANUFACTURERS LISTED ARE APPROVED MANUFACTURERS.
4. ELECTRICAL TRADES SHALL PROVIDE COMPLETE SUBMITTALS (SHOP DRAWINGS) ON ALL LIGHT FIXTURES, LAMPS, CONTROLS AND ACCESSORIES, ETC. REFER TO SPECIFICATION FOR SUBMITTAL FORMAT AND PROCESS.
5. ALL LUMINARIES AND CONTROLS SHALL COMPLY WITH THE MICHIGAN UNIFORM ENERGY CODE AND ASHRAE 90.1.

LIGHTING SYMBOL LIST

SYMBOL	DESCRIPTION
	LIGHT FIXTURE
	EMERGENCY LIGHT (1/2 SHADED)
	WALL MOUNTED LIGHT FIXTURE
	DOWNLIGHT
	DOWNLIGHT WALL WASH FIXTURE
	WALL SCONCE LIGHT FIXTURE
	SURFACE MOUNTED LIGHT FIXTURE
	INTERIOR WALL MOUNTED LIGHT FIXTURE
	TRACK AND TRACK MOUNTED LIGHT FIXTURES
	CEILING MOUNTED EXIT LIGHT - ARROWS AS INDICATED ON PLAN (SHADED AREA INDICATES FACE(S) OF FIXTURE)
	WALL MOUNTED EXIT LIGHT - ARROWS AS INDICATED ON PLAN (SHADED AREA INDICATES FACE(S) OF FIXTURE)
	EXTERIOR POLE MOUNTED LIGHT FIXTURE
	EXTERIOR WALL MOUNTED LIGHT FIXTURE
	EXTERIOR POST TOP LIGHT FIXTURE
	BOLLARD LIGHT FIXTURE
$	SINGLE POLE SWITCH
$2	TWO POLE SWITCH
$3	THREE WAY SWITCH
$4	FOUR WAY SWITCH
$K	KEYED SWITCH
$D	DIMMER SWITCH
$L	LOW VOLTAGE SWITCH
$P	SWITCH WITH PILOT LIGHT
$^3	DUAL SWITCH

LIGHTING CONTROLS LEGEND

SYMBOL	DESCRIPTION
$T	DIGITAL TIMER SWITCH
$OS	WALL OCCUPANCY SENSOR SWITCH
OS	OCCUPANCY SENSOR
DLS	DAYLIGHT SENSOR
P	PHOTOCELL

NOTES:
1. DRAWINGS INDICATE DESIGN INTENT ONLY.
2. SENSOR SELECTION, QUANTITY AND LOCATION TO BE DETERMINED BY MANUFACTURER BASED ON AREA TO BE COVERED.

FIRE ALARM SYMBOL LIST

SYMBOL	DESCRIPTION
F	AUDIBLE DEVICE
F	COMBINATION AUDIBLE/VISUAL DEVICE
F	CEILING MOUNTED AUDIBLE/VISUAL DEVICE
F	VISUAL DEVICE
S	CEILING MOUNTED VISUAL DEVICE
FD	FIRE DEPARTMENT COMMUNICATION OUTLET
F	MANUAL PULL STATION
DH	DOOR HOLDER
S	SMOKE DETECTOR (ZONED AS INDICATED)
SP	PHOTOELECTRIC SMOKE DETECTOR (ZONED AS INDICATED)
H	HEAT DETECTOR (ZONED AS INDICATED)
TS	TAMPER SWITCH
FS	FLOW SWITCH
D	DUCT MOUNTED SMOKE DETECTOR
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL

ELECTRICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
AF	AMP FUSE
AFF	ABOVE FINISHED FLOOR
AIC	AVAILABLE INTERRUPTING CURRENT (AMPS)
ATS	AUTOMATIC TRANSFER SWITCH
CB	CIRCUIT BREAKER
(E)	EXISTING ELECTRICAL EQUIPMENT OR WORK
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
G/GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
HOA	HAND-OFF-AUTO
IG	ISOLATED GROUND
LP	LIGHTING PANEL
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSIBLE
NIC	NOT IN CONTRACT
P	POLE
(R)	RELOCATED EXISTING ELECTRICAL EQUIPMENT
(RR)	REMOVE AND REINSTALL
RMC	RIGID METALLIC CONDUIT
RP	RECEPTACLE PANEL
TBB	TELEPHONE BACKBOARD
TYP.	TYPICAL
WG	WIRE GUARD
WP	WEATHERPROOF

POWER SYMBOL LIST

SYMBOL	DESCRIPTION
TC	TIME CLOCK
C	CONTACTOR
J	HARD WIRE CONNECTION BY ELECTRICAL CONTRACTOR
	SINGLE RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET MOUNTED 6" ABOVE FINISH COUNTER
C	CEILING MOUNTED DUPLEX RECEPTACLE OUTLET
	EMERGENCY DUPLEX RECEPTACLE OUTLET
	DEDICATED DUPLEX RECEPTACLE OUTLET
	QUAD RECEPTACLE OUTLET
	DEDICATED QUAD RECEPTACLE OUTLET
	FLOOR MOUNTED DUPLEX RECEPTACLE OUTLET
	NEMA RECEPTACLE OUTLET (CONFIGURATION AS NOTED)
	PLUG STRIP
J	JUNCTION BOX (C=CEILING MOUNTED)
	RECEPTACLE PANEL
	LIGHTING PANEL
	DISTRIBUTION/EQUIPMENT POWER PANEL
T	TRANSFORMER
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	CONDUIT DOWN
	CONDUIT UP
	GROUNDING ROD
	GROUND
	GROUNDING BAR
M	METER
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION MAGNETIC MOTOR STARTER
$M	MOTOR RATED SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR

AUXILIARY SYST. SYMBOL LIST

SYMBOL	DESCRIPTION
	TELEPHONE OUTLET
T	FLOOR MOUNTED TELEPHONE OUTLET BOX (TYP.)
	TELEPHONE OUTLET MOUNTED 6" ABOVE FINISHED COUNTER
	DATA OUTLET
	COMBINATION OUTLET (VOICE, VIDEO, AND/OR DATA)
C	CEILING MOUNTED OUTLET BOX (TYP.)
	PUSH BUTTON
TV	TELEVISION OUTLET
S	SPEAKER
	CAMERA

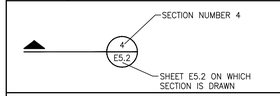
TAG SYMBOL	SPACE TYPE	PARAMETERS: MANUAL-ON/OFF	DIMMING SWITCH	OVERRIDE SWITCH	MULTI ZONE CONTROL	KEY SWITCH	TIMECLOCK	OCCUPANCY SENSOR	PHOTOCONTROL DIMMING	EXTERIOR PHOTOCELL	COLOR TUNING	RGB/RGBW	BACNET COMPATIBLE	SEQUENCE OF OPERATIONS
1	PRIVATE OFFICE	X	X					X						MANUAL ON/AUTOMATIC OFF WITHIN 20 MIN OF OCCUPANTS LEAVING SPACE (VACANCY MODE). CONTINUOUS DIMMING. [DROP DOWN FOR DAYLIGHT]
2	MEETING & READING ROOMS	X	X					X						MANUAL ON/AUTOMATIC OFF WITHIN 20 MIN OF OCCUPANTS LEAVING SPACE (VACANCY MODE). CONTINUOUS DIMMING. [DROP DOWN FOR DAYLIGHT]
3	HALL/LOBBY/RECEPTION /EXHIBIT HALL		X	X			X	X						MANUAL OVERRIDE SWITCH WITH ON/OFF AND DIM FUNCTION. AUTOMATIC ON TO FULL VIA OCCUPANCY SENSOR OR SCHEDULED TIME FUNCTION. AUTOMATIC PARTIAL OFF TO 50% VIA OCCUPANCY SENSOR (VACANCY MODE) WITHIN 20 MIN OF OCCUPANTS LEAVING SPACE. SCHEDULED SHUTOFF VIA SCHEDULED TIME FUNCTION. [DROP DOWN FOR DAYLIGHT]
4	RESTROOM			X				X						MANUAL OVERRIDE SWITCH WITH ON/OFF FUNCTION. AUTOMATIC ON TO FULL VIA OCCUPANCY SENSOR. AUTOMATIC FULL OFF VIA OCCUPANCY SENSOR (VACANCY MODE) WITHIN 20 MIN OF OCCUPANTS LEAVING SPACE.
5	STORAGE ROOM	X		X				X						MANUAL OVERRIDE SWITCH WITH ON/OFF FUNCTION. AUTOMATIC ON TO FULL VIA OCCUPANCY SENSOR. AUTOMATIC FULL OFF VIA OCCUPANCY SENSOR (VACANCY MODE) WITHIN 20 MIN OF OCCUPANTS LEAVING SPACE.
6	MECH/ELECTRICAL/ KITCHEN	X		X										MANUAL OVERRIDE SWITCH WITH ON/OFF FUNCTION.
7	EXTERIOR EGRESS/SECURITY LIGHTING		X	X			X			X			X	MANUAL OVERRIDE SWITCH WITH ON/OFF AND DIM FUNCTION. AUTOMATIC ON TO FULL VIA SCHEDULED TIME FUNCTION OR PHOTOCELL AUTOMATIC LIGHT LEVEL REDUCTION TO 70% AFTER HOURS VIA SCHEDULED TIME FUNCTION. FULL SHUTOFF VIA SCHEDULED TIME FUNCTION OR PHOTOSENSOR.

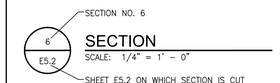
NOTES:
1. ALL LIGHTING SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.
2. PROVIDE LIGHTING CONTROL SYSTEM TO ASHRAE 90.1-2013 CODE EXCLUDED AUTOMATIC RECEPTACLE CONTROL FOR STATE OF MICHIGAN.
3. PARKING LOT AND BUILDING LIGHTS SHALL CONTROL VIA CENTRAL PHOTOCELL AND TIME CLOCK.
4. PROVIDE FUNCTIONAL TESTING (CALIBRATED/ADJUSTED/PROGRAMMED) OF LIGHTING CONTROL DEVICES AND SYSTEMS REQUIRED WITHIN 90 DAYS OF OCCUPANCY PER ASHRAE 90.1-2013, SECTIONS 9.4.3. MUST BE PERFORMED BY INDIVIDUALS NOT INVOLVED IN DESIGN, MANUFACTURE OR INSTALLATION.

DRAWING INDEX

DRAWING NOTATION

SYMBOL	DESCRIPTION
FA	LIGHTING FIXTURE TAG
1	CONSTRUCTION KEY NOTE NUMBER 1
1	DEMOLITION KEY NOTE NUMBER 1
EF 1	EQUIPMENT DESIGNATION, (I.E. EXHAUST FAN NUMBER 1)
	EXISTING DEVICES OR EQUIPMENT
	NEW OR MODIFIED DEVICES OR EQUIPMENT
	NEW OR MODIFIED UNDERGROUND WIRING
	EXISTING SYSTEM COMPONENT TO BE REMOVED





APPLICABLE CODES AND REGULATIONS

YEAR	CODE
2014	MICHIGAN ELECTRICAL CODE RULES, PART 8
2014	NATIONAL ELECTRICAL CODE (NFPA 70)
2015	MICHIGAN BUILDING CODE
2015	MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS
2015	MICHIGAN RESIDENTIAL CODE
2009	MICHIGAN UNIFORM ENERGY CODE
2013	NFPA 20
2013	NFPA 72
2012	NFPA 101
2013	NFPA 110
2009	ICC A117.1 ACCESSIBLE AND USABLE BUILDINGS & FACILITIES

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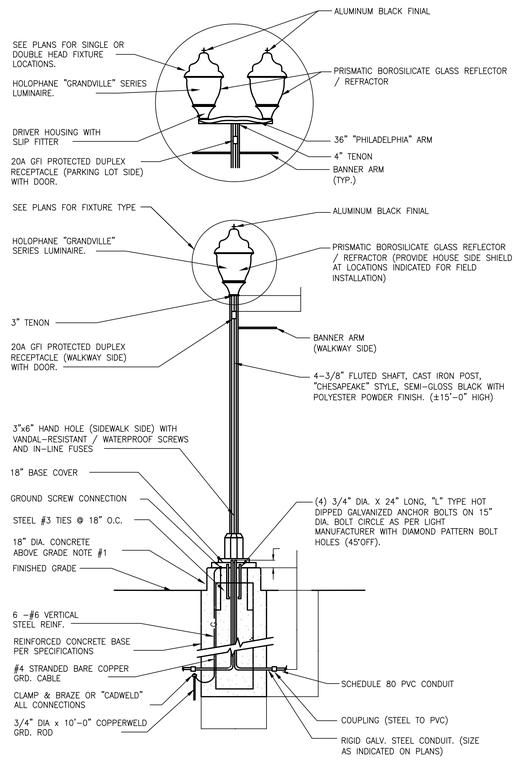
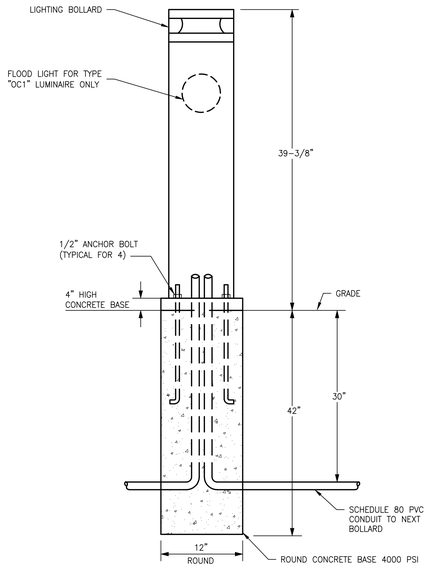


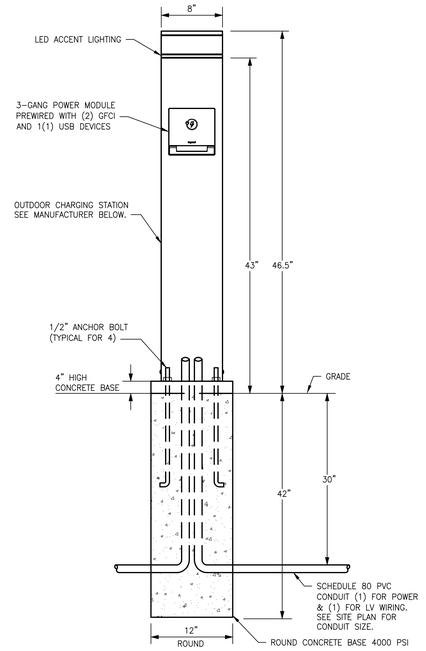
PARKING LOT LIGHTING TYPE OA (DOUBLE HEAD) & TYPE OB (SINGLE HEAD)
N.T.S.

NOTE:

1. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 2" CONCRETE COVERAGE FROM THE FACE OF ANCHOR BOLT.



BOLLARD LIGHTING TYPE "OC" & "OC1" - BASE DETAIL
NO SCALE



OUTDOOR CHARGING STATION DETAIL
NO SCALE

MANUFACTURER: LEGRAND – WIREMOLD
PART NO. XCSLF3GRUU-BK

SHEET NOTES

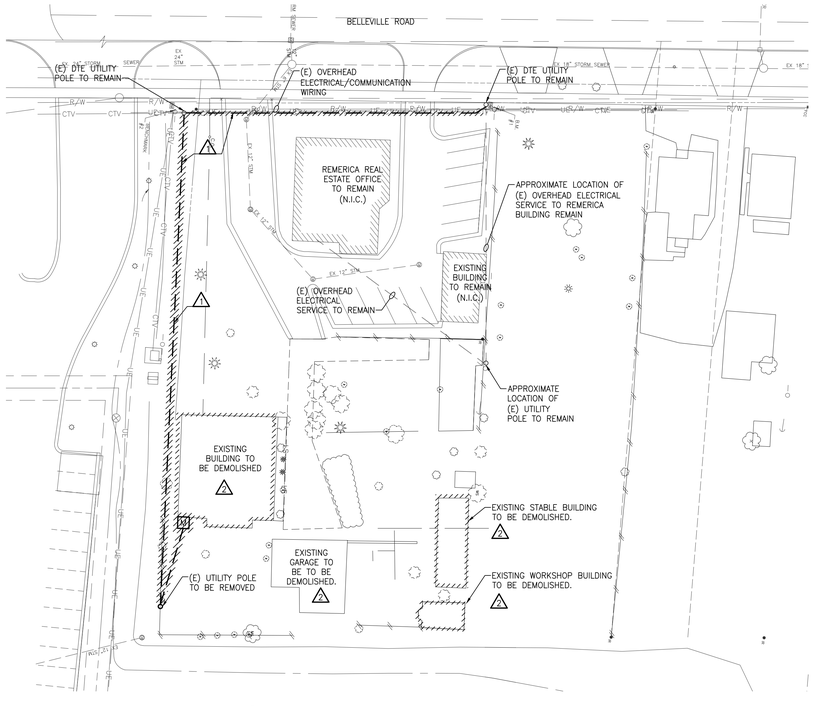
1. COORDINATE COMPLETE INSTALLATION AND REQUIREMENT OF INCOMING ELECTRICAL SERVICE WITH DETROIT EDISON PRIOR TO COMMENCEMENT OF WORK.
2. ALL EMPTY CONDUITS TO BE INSTALLED WITH PULL WIRE.
3. ELECTRICAL CONTRACTOR TO PROVIDE TEMPORARY POWER THROUGH-OUT THE DURATION OF THE PROJECT AS REQUIRED FRO THE SCOPE OF THIS PROJECT. INCLUDE ALL ASSOCIATED COST IN THE BID PRICE.
4. CONTRACTOR SHALL TAKE ALL NECESSARY PRE-CAUTIONS TO AVOID INTERFERENCES WITH OTHER SERVICES INTO AND THROUGHOUT THE SITE.
5. EXACT ROUTING AND FINAL LOCATION OF ALL CONDUITS TO BE COORDINATED IN THE FIELD PRIOR TO INSTALLATION.
6. ALL 120V, 20A CIRCUITS OVER 150' IN LENGTH TO BE #10AWG WIRING.
7. CUT, CORE DRILL AND CHANNEL EXISTING WALLS, FLOORS AND ROOF AS REQUIRED TO INSTALL MECHANICAL WORK. PATCH FLOORS, WALLS AND ROOF TO MATCH EXISTING.
8. EXACT CONDUIT ROUTING TO BE FIELD VERIFIED. COORDINATE ALL UNDERGROUND CONDUIT ROUTING WITH SITE WORK.

NEW WORK KEYED NOTES

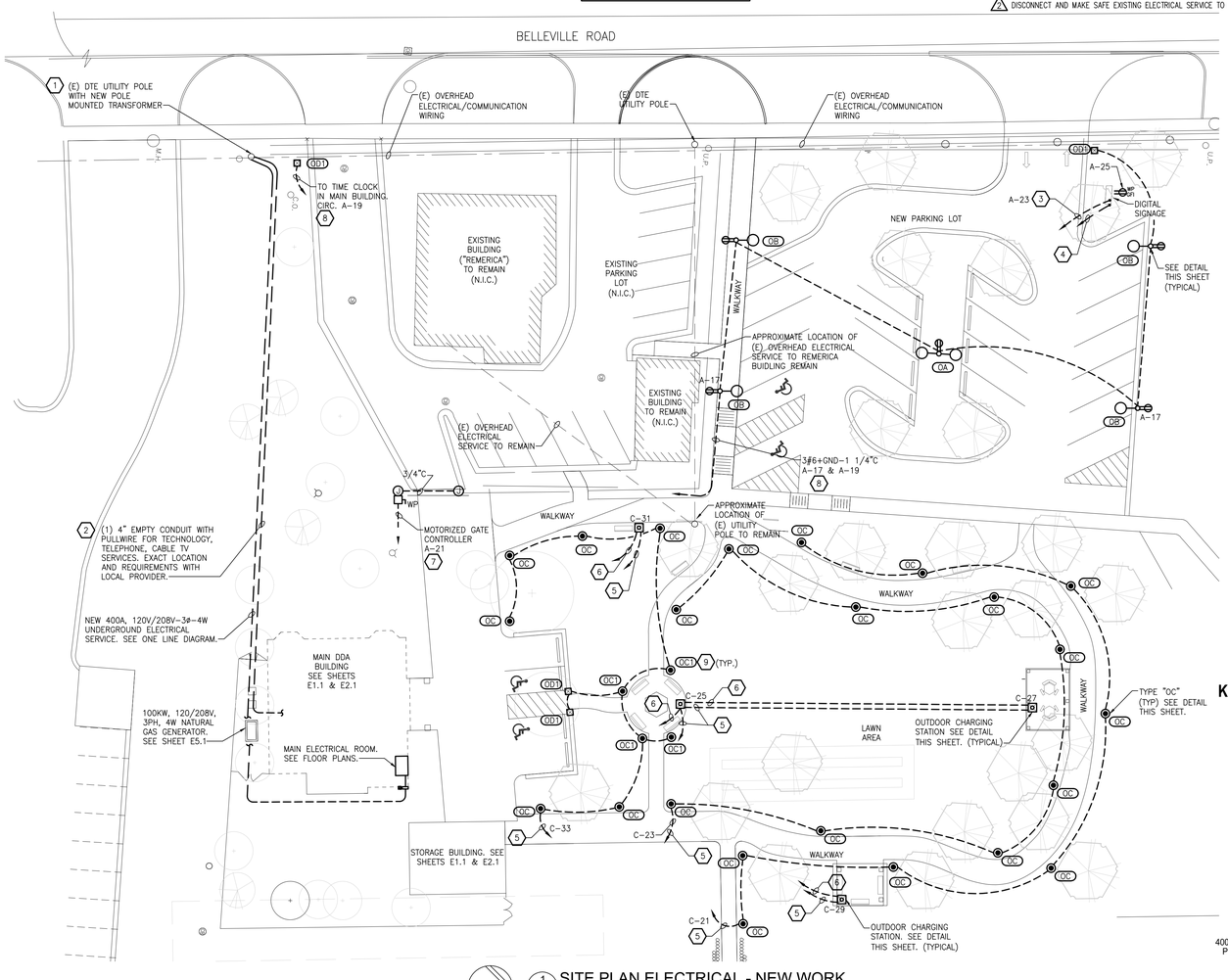
1. STUB-UP CONDUIT AT DTE EXISTING UTILITY POLE. PROVIDE SCHEDULE 80 PVC U-GUARD ON POLE FROM GRADE UP TO 10'-0" AFG. LEAVE SUFFICIENT CABLE AT TOP OF U-GUARD OF ADEQUATE LENGTH AS REQUIRED BY DTE COMPANY. FINAL TERMINATIONS AT POLE MOUNTED TRANSFORMER BY DTE COMPANY INCLUDING ALL ASSOCIATED COSTS IN THE ELECTRICAL BID PRICE.
2. CONTRACTOR SHALL MAKE ARRANGEMENTS WITH LOCAL PHONE AND CABLE TV PROVIDERS FOR COORDINATING EXACT LOCATION OF MAIN INCOMING TELEPHONE AND CABLE TV SERVICES WITH HIS WORK. FINAL BACKFILLING SHALL NOT BE COMPLETED UNTIL ALL TELEPHONE AND CABLE TV SERVICES HAVE BEEN INSTALLED. EXACT LOCATION AND ROUTING OF TELEPHONE AND CABLE TV CONDUITS TO BE VERIFIED WITH PHONE AND CABLE TV PROVIDER PRIOR TO INSTALLATION. INCLUDE ALL ASSOCIATED COSTS IN THE BID PRICE.
3. PROVIDE 2#6+1#6NEU+1#6GND IN 1 1/4"C FOR NEW DIGITAL SIGNAGE. CONNECT TO PANELBOARD RP-A ON A 20A,2P. BREAKER. PROVIDE WEATHERPROOF WP DISCONNECT SWITCH. COORDINATE EXACT LOCATION AND POWER REQUIREMENTS WITH SIGNAGE SUPPLIER.
4. PROVIDE (1) 1 1/4" EMPTY CONDUIT FOR FUTURE LOW VOLTAGE WIRING TO SIGNAGE. ROUTE CONDUIT TO TELECOMMUNICATION BACKBOARD IN MAIN DDA BUILDING. STUB CONDUITS AT BOTH ENDS AND LABEL USE.
5. 2#6+GND-1 1/4"C TO PANEL RP-C VIA TIME CLOCK IN STORAGE/RESTROOMS BUILDING. CIRCUIT AS SHOWN. EXACT CONDUIT ROUTING TO BE FIELD VERIFIED.
6. (1) 1 1/4" UNDERGROUND CONDUIT FOR LOW VOLTAGE WIRING BACK TO TELECOMMUNICATION BACKBOARD IN MAIN DDA BUILDING.
7. 2#8+GND-1"C FOR MOTORIZED GATE CONTROLLER. CONNECT TO PANELBOARD RP-A ON A 20A.1P. BREAKER. PROVIDE WP DISCONNECT SWITCH. COORDINATE EXACT LOCATION AND POWER REQUIREMENTS WITH GATE INSTALLER.
8. PROVIDE TIME CLOCK CONTROL FOR PARKING LOT LIGHTING. CONNECT TO PANEL RP-A CIRCUIT AS SHOWN.
9. FINAL LOCATION AND PLACEMENT OF TYPE "OC1" TO BE COORDINATED WITH FINAL PARK BENCH LAYOUT.

DEMOLITION KEYED NOTES

1. DISCONNECT, MAKE SAFE AND REMOVE EXISTING OVERHEAD SERVICE TO BUILDING COMPLETE WITH POLE, METERING AND WIRING. COORDINATE WORK WITH DTE.
2. DISCONNECT AND MAKE SAFE EXISTING ELECTRICAL SERVICE TO BUILDING FOR DEMOLITION.



N
2 SITE PLAN ELECTRICAL - DEMOLITION
ES1.1 SCALE: 1" = 30'-0"



N
1 SITE PLAN ELECTRICAL - NEW WORK
ES1.1 SCALE: 1" = 20'-0"

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SITE PLAN ELECTRICAL - DEMOLITION AND NEW WORK

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

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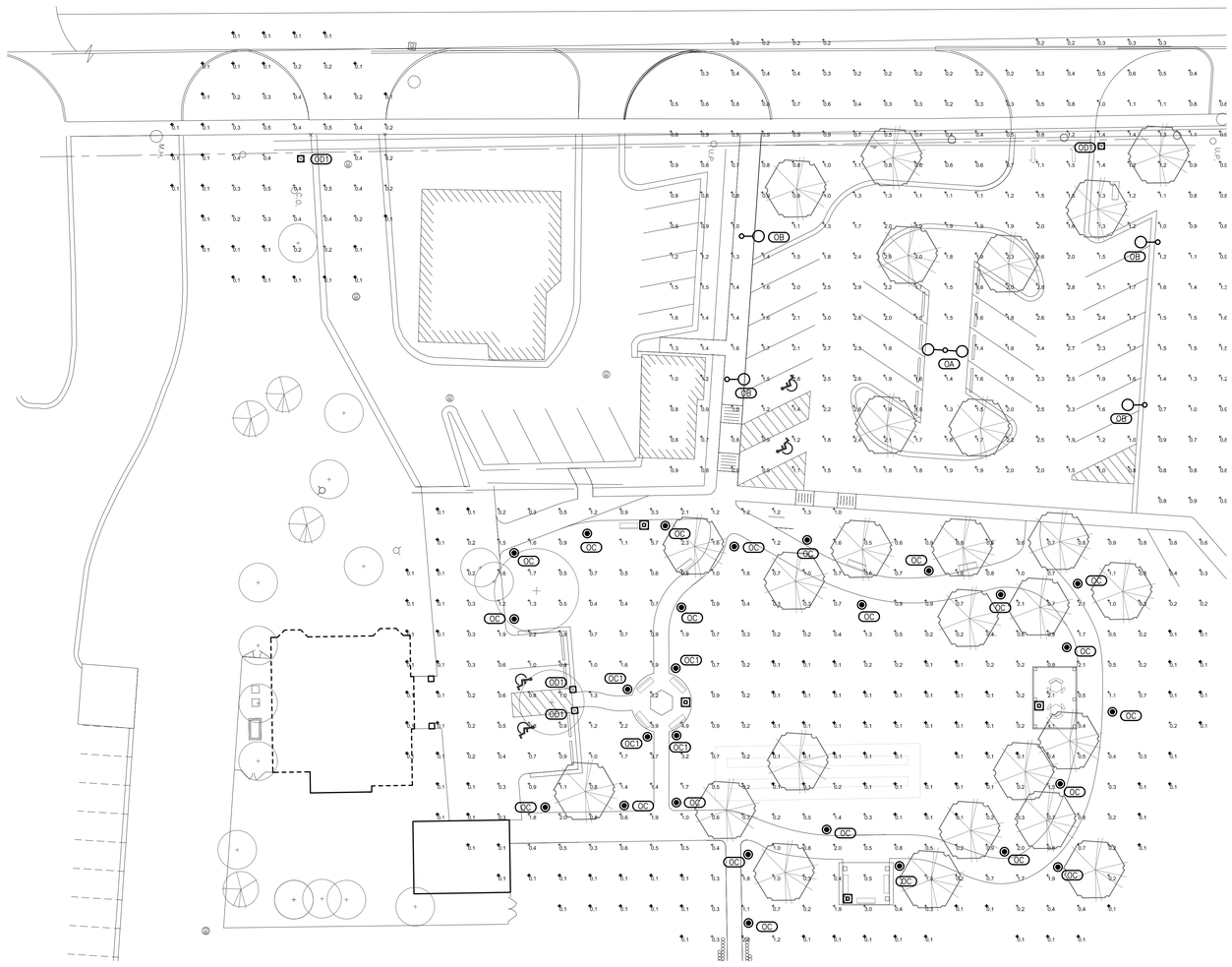

1 SITE LIGHTING PHOTOMETRICS
ES1.1 SCALE: 1" = 20'-0"

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ENTRY	+	0.2 fc	0.5 fc	0.1 fc	5.0:1	2.0:1
PARKING LOT	+	1.2 fc	3.3 fc	0.2 fc	16.5:1	12.0:1
WALKWAY	+	0.7 fc	5.7 fc	0.1 fc	57.0:1	7.0:1

EXTERIOR LUMINAIRE SCHEDULE	
FIXTURE MARK	DESCRIPTION
OA	DECORATIVE POST-TOP STYLE LED LUMINAIRE GRANDVILLE II LED (DOUBLE HEAD). 100W, 4000K 120V TYPE 5 DISTRIBUTION, 10889 LUMENS PER LAMP. FLUTED SHAFT CAST IRON POST (15 FEET) WITH, 20A, WP DUPLEX RECEPTACLE, BANNER ARM, SEMI BLACK WITH POLYESTER POWDER FINISH.
OB	SAME AS TYPE OA EXCEPT WITH SINGLE HEAD.
OC	LED BOLLARD LUMINAIRE WITH 360° DEGREE SYMMETRICAL DISTRIBUTION. 18.4 W, -30°C START TEMPERATURE, INTEGRAL 120V ELECTRONIC LED DRIVE, 881 LUMENS DIE-CAST ALUMINUM AND BORDSILLICATE GLASS.
OC1	SAME AS TYPE "OC1" EXCEPT WITH INTEGRAL FLOODLIGHT.
OD1	DECORATIVE POST-TOP STYLE LUMINAIRE GRANDVILLE MINI, 120V, 2000 LUMEN SCREW IN BASE LED LAMP, CAST ALUMINUM PIER MOUNTING BASE, STANDARD FINIAL, DECORATIVE BAND, SEMI BLACK WITH POLYESTER POWDER FINISH.

PHOTOMETRIC CALCULATIONS NOTES

1. LUMINAIRE SCHEDULE SHOWN HERE FOR REFERENCE ONLY. REFER TO LUMINAIRE SCHEDULE ON SHEET E0.0 FOR EXACT FIXTURE SPEC.
2. REFER TO SHEET ES1.1 FOR EXACT FIXTURE LAYOUT AND CIRCUITING.

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SITE LIGHTING PHOTOMETRICS

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DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

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CHECKED BY: PA

REVISIONS:
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SHEET NO.:
ES1.2

JOB NO.: 161675

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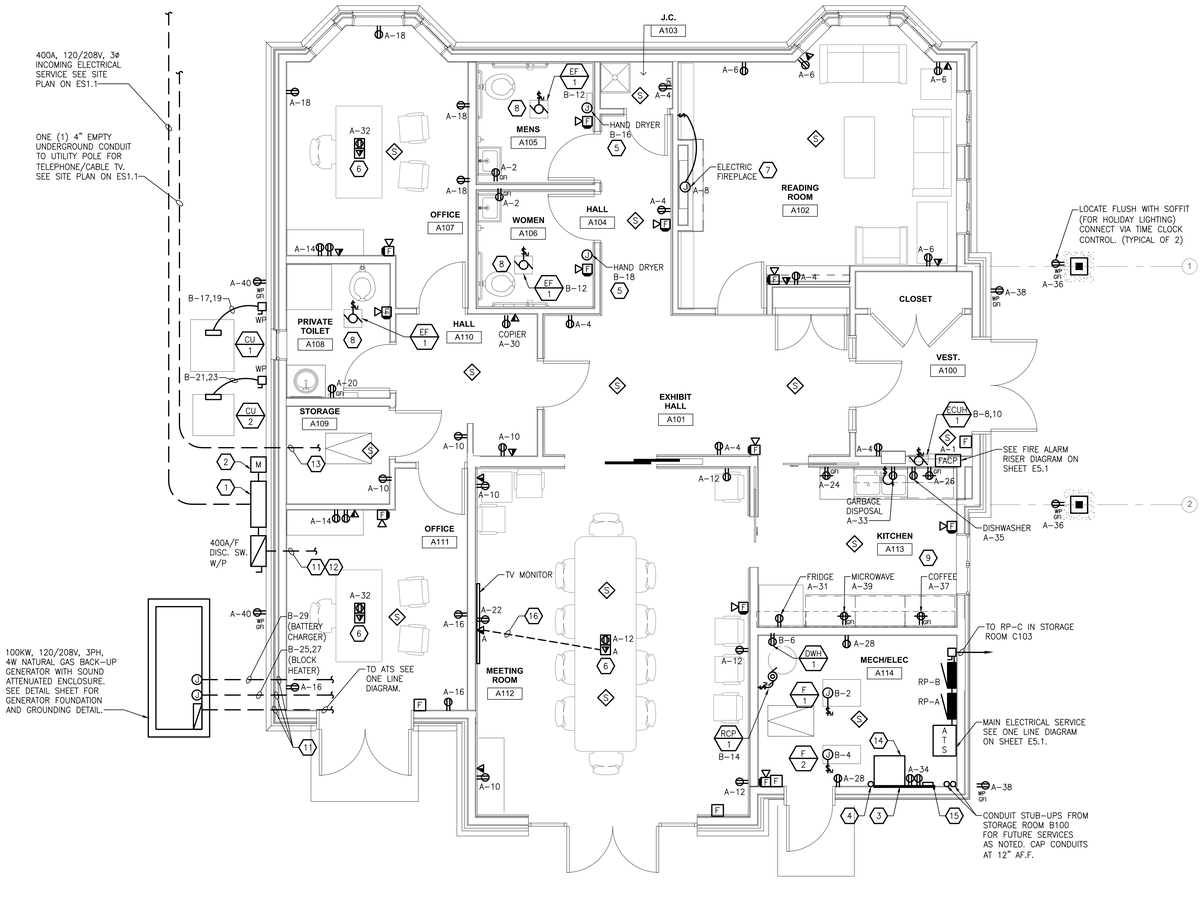
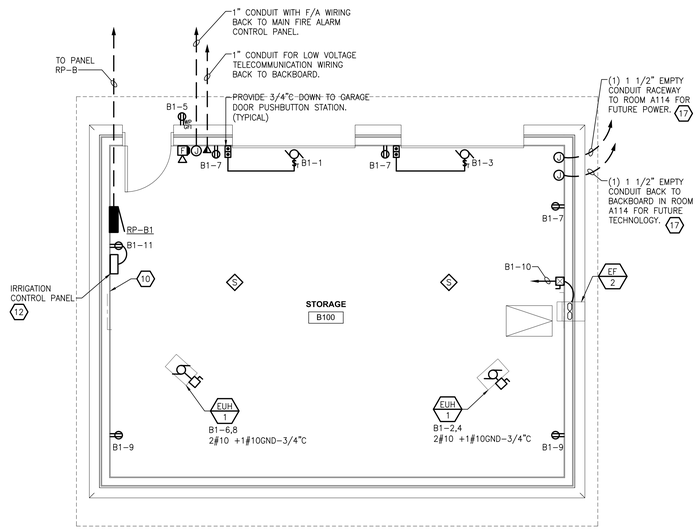


N 1 E1.1 FIRST FLOOR PLAN - POWER & SYSTEMS
SCALE: 1/4" = 1'-0"



N 2 E1.1 FLOOR PLAN STORAGE BUILDING - POWER & SYSTEMS
SCALE: 1/4" = 1'-0"

ELECTRICAL GENERAL NOTES

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES UNLESS OTHERWISE NOTED.
2. SEE LUMINAIRE SCHEDULE ON ELECTRICAL GENERAL INFORMATION SHEET.
3. EXIT LIGHTS AND EMERGENCY BATTERY UNITS SHALL BE UNCONTROLLED AND TIED AHEAD OF LOCAL AREA LIGHTING SWITCH, UNLESS CIRCUITED OTHERWISE.
4. WHERE MORE THAN ONE LIGHT SWITCH IS INDICATED TO BE INSTALLED AT THE SAME LOCATION, THEY SHALL BE GROUPED UNDER ONE COMMON FACEPLATE.
5. ALL ELECTRICAL DEVICES SHOWN ON THIS PLAN SHALL BE NEW UNLESS OTHERWISE NOTED.
6. ANY 120 VOLT BRANCH CIRCUIT FEEDER LONGER THAN 75'-0" TO LAST DEVICE SHALL BE SIZED TO THE NEXT LARGER STANDARD AWG SIZE. E.C. SHALL FIELD VERIFY ALL LENGTHS OF FEEDERS.
7. ALL RECEPTACLES SHALL BE 20A RATED.
8. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE.
9. ALL RECEPTACLES WITHIN 6'-0" OF SINK OR OTHER WATER SUPPLY SHALL BE GFCI TYPE RECEPTACLE.
10. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR EXACT LOCATION OF DEVICES.
11. ALL JUNCTION BOXES SERVING BRANCH CIRCUIT WIRING SHALL BE LABELED WITH CIRCUITS SERVED.
12. ALL 120 VOLT CIRCUITS SHALL UTILIZE A SEPARATE NEUTRAL.
13. ALL CONDUITS SERVING 120 VOLTS OR GREATER SHALL INCLUDE A GROUND WIRE.
14. ALL CONDUITS SHALL BE ROUTED CONCEALED UNLESS NOTED OTHERWISE.
15. ALL ELECTRICAL EQUIPMENT MOUNTED ON THE FLOOR SHALL BE MOUNTED ON A 4" CONCRETE HOUSE KEEPING PAD.
16. ALL FIRE ALARM DEVICES SHALL BE 15 CANDELA RATED UNLESS NOTED OTHERWISE.
17. ALL BRANCH CIRCUIT WIRING SHALL BE 2#12, 1#12GND IN 3/4" CONDUIT, UNLESS NOTED OTHERWISE..
18. ALL RECEPTACLES LOCATED OUTSIDE OR OUTDOORS SHALL BE GFCI.

KEYED NOTES

1. DTE CT METER CABINET EXACT LOCATION TO BE APPROVED BY DTE.
2. UTILITY METER BASE AND METER. EXACT LOCATION TO BE APPROVED BY DTE.
3. 4'x8' PLYWOOD BACKBOARD FOR LOW VOLTAGE TECHNOLOGY (TELEPHONE/CABLE TV) SERVICES.
4. STUB-UP CONDUIT 6" AFF. EXACT LOCATION TO BE FIELD VERIFIED. CONTRACTOR TO VERIFY WITH LOCAL TELEPHONE AND CABLE TV PROVIDER IF BOTH SERVICES IS ACCEPTABLE TO SHARE THE SAME CONDUIT.
5. ELECTRIC HAND DRYER, 1500W, 120V. COORDINATE EXACT MOUNTING HEIGHT. CIRCUIT AS SHOWN.
6. EXACT LOCATION OF FLOOR OUTLETS TO BE COORDINATED IN THE FIELD WITH FURNITURE LAYOUT.
7. COORDINATE EXACT LOCATION AND POWER REQUIREMENTS WITH FIRE PLACE INSTALLER.
8. CONNECT BATHROOM EXHAUST FAN TO BATHROOM LIGHT SWITCH.
9. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF OUTLETS IN KITCHEN WITH ARCHITECTURAL DRAWINGS.
10. INCOMING WATER SERVICE. PROVIDE GROUNDING OF ELECTRICAL TO MAIN INCOMING WATER AND BOND WATER AND GAS METER PER NEC.
11. ROUTE CONDUITS UP AND THRU WALL VIA L.B. FITTING INTO CRAWL SPACE.
12. TO ELECTRICAL SERVICE EQUIPMENT IN MECH/ELEC ROOM A114.
13. TO BACKBOARD IN MECH/ELEC ROOM A114. ROUTE CONDUIT THRU CRAWL SPACE.
14. PROVIDE WALL MOUNTED, SWING-OUT 12U RACK FOR TERMINATION OF ALL TECHNOLOGY CABLING.
15. WALL MOUNTED 4-WAY CO-AXIAL SPLITTER. ROUTE ALL COAXIAL CABLE BACK TO THIS LOCATION.
16. PROVIDE HDMI CABLE BETWEEN WALL TV MONITOR AND FLOOR BOX UNDER TABLE. FLOOR BOX TO BE 8" ROUND COMBINATION POWER/AV FLOOR BOX (FOR WOOD FLOOR CONSTRUCTION) EQUIPPED WITH DIE-CAST ALUMINUM WIDE FLANGE COVER (BRASS FINISH) FOR CARPET FLOOR. ONE (1) DUPLEX RECEPTACLE, TWO (2) RJ45 JACKS AND ONE (1) HDMI CONNECTION JACK. LEGRAND-WIREMOLD-EVOLUTION SERIES. REFER TO MANUFACTURER FOR FLOOR SIZE OPENING REQUIRED.
17. STUB-UP EMPTY CONDUITS 12" ABOVE GRADE AND TERMINATE IN JUNCTION BOX. LABEL JUNCTION BOXES FOR FUTURE SERVICE AS NOTED ON PLAN. PROVIDE NYLON PULL STRING IN EACH CONDUIT. EXACT STUB-UP LOCATION TO BE FIELD VERIFIED.

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FIRST FLOOR PLAN - POWER & SYSTEMS

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DESIGN DEVELOPMENT ☐
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FINAL RECORD ☐

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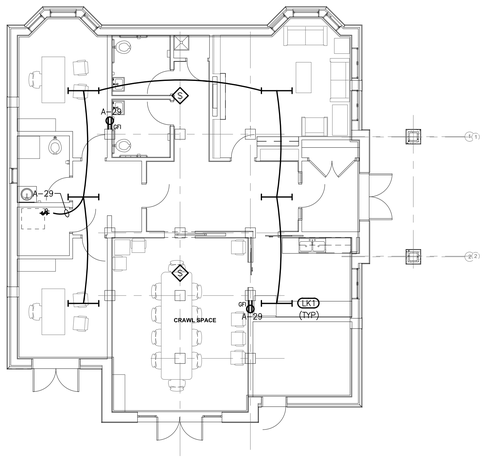
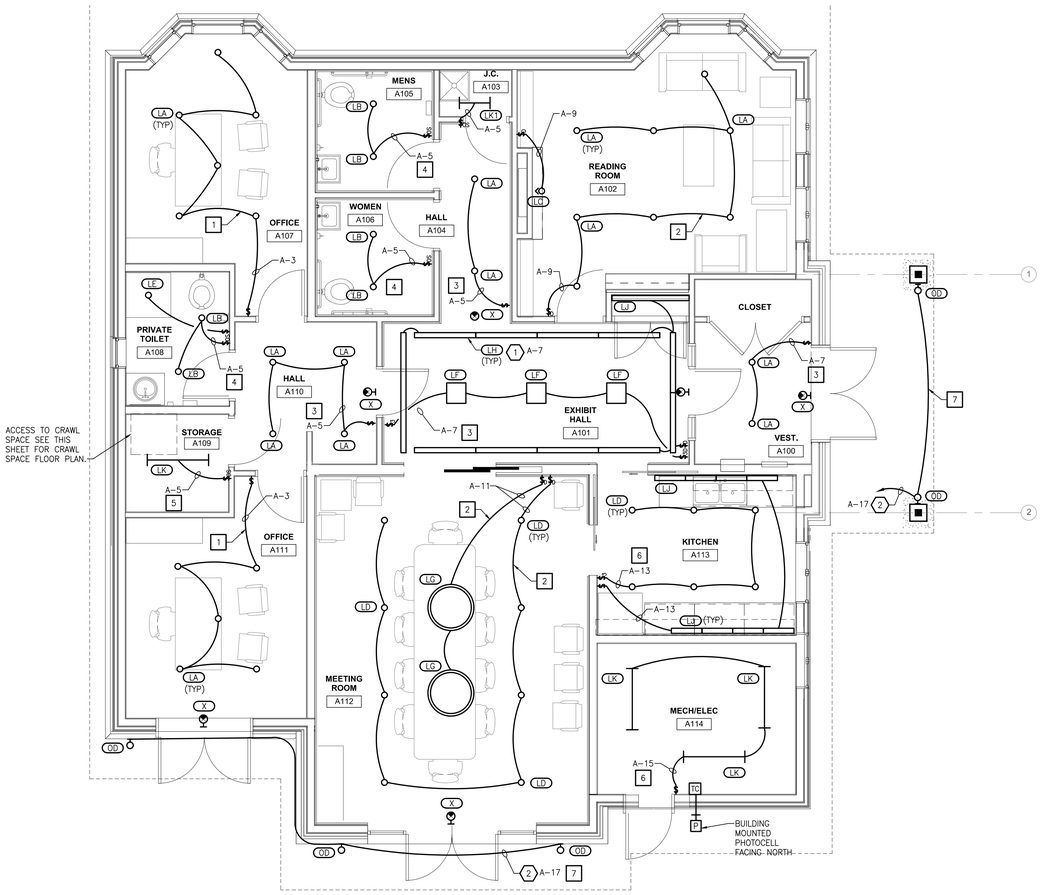
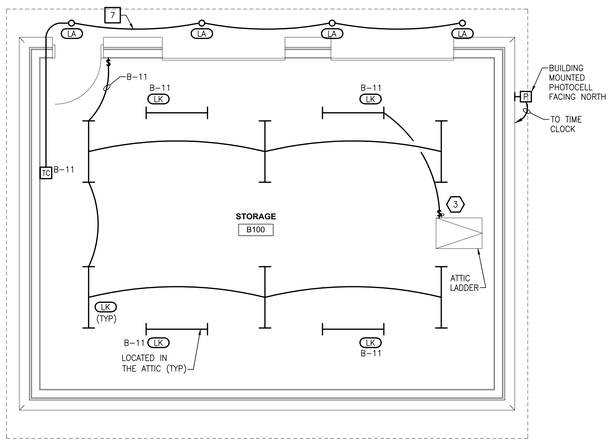




N 2 E2.1 CRAWL SPACE FLOOR PLAN - ELECTRICAL
SCALE: 1/8" = 1'-0"

N 1 E1.1 FIRST FLOOR PLAN - LIGHTING
SCALE: 1/4" = 1'-0"



N 3 E1.1 FLOOR PLAN STORAGE BUILDING - LIGHTING
SCALE: 1/4" = 1'-0"

ELECTRICAL GENERAL NOTES

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES UNLESS OTHERWISE NOTED.
2. SEE LUMINAIRE SCHEDULE ON ELECTRICAL GENERAL INFORMATION SHEET.
3. EXIT LIGHTS AND EMERGENCY BATTERY UNITS SHALL BE UNCONTROLLED AND TIED AHEAD OF LOCAL AREA LIGHTING SWITCH, UNLESS CIRCUITED OTHERWISE.
4. WHERE MORE THAN ONE LIGHT SWITCH IS INDICATED TO BE INSTALLED AT THE SAME LOCATION, THEY SHALL BE GROUPED UNDER ONE COMMON FACEPLATE.
5. ALL ELECTRICAL DEVICES SHOWN ON THIS PLAN SHALL BE NEW UNLESS OTHERWISE NOTED.
6. ANY 120 VOLT BRANCH CIRCUIT FEEDER LONGER THAN 75'-0" TO LAST DEVICE SHALL BE SIZED TO THE NEXT LARGER STANDARD AWG SIZE. E.C. SHALL FIELD VERIFY ALL LENGTHS OF FEEDERS.
7. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR EXACT LOCATION OF DEVICES.

KEYED NOTES

1. CONTRACTOR TO FIELD MEASURE EXACT COVE LENGTH.
2. CONNECT SOFFIT LIGHTING VIA TIME CLOCK IN MAIN ELECTRICAL ROOM.
3. LOCATE SWITCH IN ATTIC SPACE. LOCATE NEAR TOP OF ATTIC LADDER. COORDINATE EXACT LOCATION IN FIELD.

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FIRST FLOOR PLAN - LIGHTING

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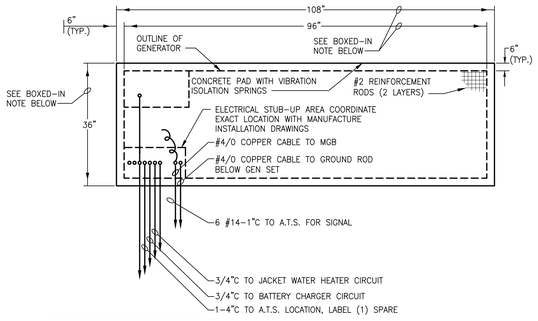
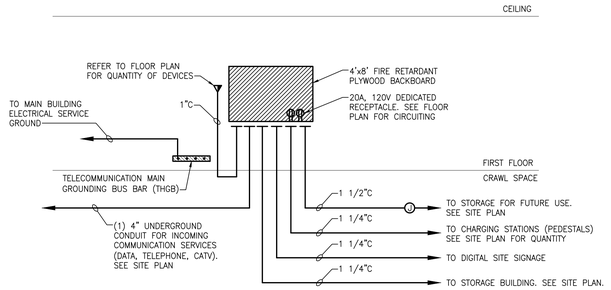
0 1/2" 1" 2"
ACCURATE WHEN PRINTED TO SCALE

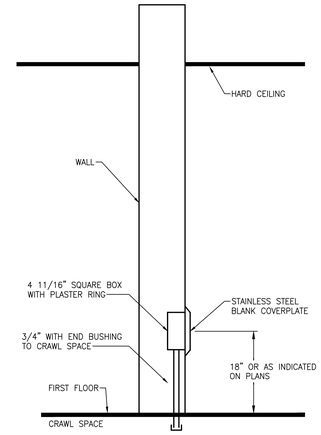


NOTE:
E.C. SHALL COORDINATE EXACT PAD DIMENSIONS WITH SELECTED GENERATOR EQUIPMENT MANUFACTURER.

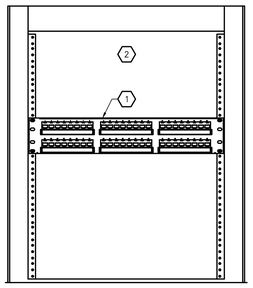
GENERATOR CONDUIT AND WIRING PLAN
NO SCALE



TELECOMMUNICATIONS PATHWAY RISER DIAGRAM
NO SCALE



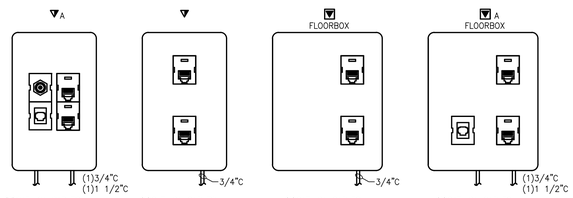
TELE/DATA OUTLET DETAIL
NO SCALE



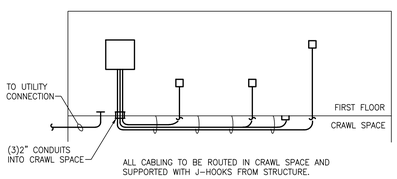
TECHNOLOGY RACK ELEVATION
NO SCALE

TECHNOLOGY RACK DETAIL KEYED NOTES

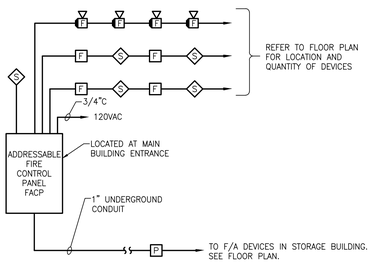
1. 2U 48 PORT CAT 6 PATCH PANEL.
2. SPACE FOR SWITCH (BY OWNER).



DEVICE PLATE DETAILS
NO SCALE



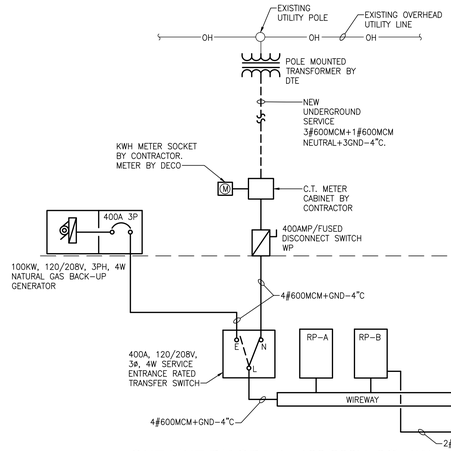
TECHNOLOGY RISER PLAN
NO SCALE



FIRE ALARM RISER DIAGRAM
NO SCALE

FIRE ALARM GENERAL NOTES

1. ALL WIRING BE INSTALLED IN STRICT COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF N.E.C. ARTICLE 760: POWER-LIMITED FIRE PROTECTIVE SIGNALING CIRCUITS.
2. ALL WIRING IN EXPOSED AREAS MUST BE INSTALLED IN RACEWAYS. ALL WIRING SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS, UNLESS NOTED INDICATED. MINIMUM CONDUIT SIZE 3/4"C.
3. SEE FLOOR PLANS FOR LOCATIONS AND QUANTITIES OF DEVICES. DEVICES SHALL BE PROVIDED AND LOCATED IN ACCORDANCE WITH APPLICABLE CODES.
4. VISUAL DEVICES SHALL BE LOCATED IN ACCORDANCE WITH A.D.A.
5. AUDIBLE DEVICES SHALL BE LOCATED IN ACCORDANCE WITH N.F.P.A. REQUIREMENTS. (AUDIBLE TO BE MINIMUM OF 15db OVER AMBIENT NOISE LEVEL).
6. ALL PROGRAMMING REQUIRED TO ACTIVATE THE FIRE ALARM SYSTEM SHALL BE PROVIDED BY THE MANUFACTURER OF THEIR TRAINED REPRESENTATIVE.
7. ARRANGEMENT OF DEVICES IS INTENDED TO SHOW GENERAL AREA AND TYPICAL LAYOUT AND IS NOT INTENDED TO DICTATE THE ORDER OF DEVICE CONNECTION OR THE NUMBER OF TAPS TO BE USED IN BRANCHING TO INDIVIDUAL DEVICES.
8. PROVIDE CALCULATIONS OF BATTERY CAPACITY REQUIRED FOR 15 MINUTES OF ALARM OPERATION FOLLOWING 24 HOURS OF STAND BY.
9. IN CORRIDORS WHERE MORE THAN TWO (2) VISIBLE NOTIFICATIONS APPLIANCES ARE IN ANY FIELD OF VIEW, THEY SHALL FLASH IN SYNCHRONIZATION.



ONE LINE DIAGRAM - 120/208V, 3Ø, 4W
NO SCALE

NOTES

1. ELECTRICAL CONTRACTOR TO CONTACT AND COORDINATE UTILITY METER AND SERVICE EQUIPMENT WITH DETROIT EDISON BEFORE COMMENCING WITH WORK.
2. ELECTRICAL CONTRACTOR TO SUPPLY SERVICE ENTRANCE CONDUCTOR AND CONDUITS IN ACCORDANCE WITH DETROIT EDISON REQUIREMENTS AND STANDARDS.
3. LOCATION OF METER ENCLOSURE AND C.T. CABINET MUST BE APPROVED BY DETROIT EDISON. ACCESS AND WORK SPACE MUST COMPLY WITH NEC 110-16 (A).
4. PROVIDE TYPE-WRITTEN PANELBOARD DIRECTORY FOR PANELBOARDS.

ELECTRICAL CONNECTED LOAD SUMMARY	
PANEL RP-A	26.2 KW
PANEL RP-B	22.4 KW
PANEL RP-B1	13.9 KW
FUTURE	21.0 KW
TOTAL	83.5 KW
@208V, 3PH	232.0 AMPS

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DDA 2016 PLACEMAKING PROJECT
10151 BELLEVILLE RD, VAN BUREN CHARTER TOWNSHIP, MI 48111

ELECTRICAL ONE LINE DIAGRAM AND DETAILS

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: DNM/JRS
CHECKED BY: PA

REVISIONS:
CONSTRUCTION SET 09/25/18

DATE: 03/21/18

SHEET NO.: E5.1

JOB NO.: 161675

Strategic Energy Solutions®
4000 W. Eleven Mile Road Berkley, MI 48072
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www.sesnet.com

SES Project #17 0758 03

Panel Designation: RP-A | **Main:** 200A | **P-P Voltage:** 208
Panel Location: MAIN EL. RM. | **Bussing:** 225A | **P-N Voltage:** 120
Fed From: ATS | **Ground Bus:** STANDARD | **Phase:** 3
Feeder Size: REFER TO ONE LINE DIAGRAM | **Mounting:** SURFACE | **Wire:** 4
Neutral: 100% | **Min SC Interrupting Rating:** 10kAIC

Remarks	Light Load	Recept Load	Cont Load	nonC Load	OC Prot	CKT	Ø A	Ø B	Ø C	CKT	OC Prot	nonC Load	Cont Load	Recept Load	Light Load	Remarks
FIRE ALARM CONTROL PANEL			500		20	1	X			2	20			360		TOILET ROOMS - RECEPTACLES
LIGHTING	176				20	3		X		4	20			1080		GENERAL RECEPTACLES
LIGHTING	230				20	5			X	6	20			900		GENERAL RECEPTACLES
LIGHTING	460				20	7	X			8	20	1200				ELECTRIC FIREPLACE
LIGHTING	300				20	9		X		10	20			720		GENERAL RECEPTACLES
LIGHTING	230				20	11			X	12	20			720		GENERAL RECEPTACLES
LIGHTING	308				20	13	X			14	20			720		OFFICES RECEPTACLES
LIGHTING	600				20	15		X		16	20			540		OFFICES RECEPTACLES
PARKIN LOT POLE RECEPTACLES		900			20	17			X	18	20			720		OFFICES RECEPTACLES
PARKING LOT LIGHTING	600				20	19	X			20	20			180		PRIVATE TOILET - RECEPTACLE
MOTORIZED GATE				1500	20	21		X		22	20			600		TV MONITOR
DIGITAL SINAGE	1500				20	23			X	24	20			500		ABOVE COUNTER RECEPTACLE - KITCHEN
RECEPTACLE AT SIGNAGE		200			20	25	X			26	20			500		ABOVE COUNTER RECEPTACLE - KITCHEN
LIGHTING	240				20	27		X		28	20			360		GENERAL RECEPTACLES
LIGHTING/RECEPTACLE CRAWL SPACE	520				20	29			X	30	20			1000		COPIER
REFRIGERATOR				1000	20	31	X			32	20			360		FLOOR OUTLETS OFFICE
GARBAGE DISPOSAL				1500	20	33		X		34	20			360		TELEPHONE BACKBOARD - RECEPTACLES
DISHWASHER				1500	20	35			X	36	20			540		EXTERIOR RECEPTACLES
COFFEE				1500	20	37	X			38	20			540		EXTERIOR RECEPTACLES
MICROWAVE				1500	20	39		X		40	20			540		EXTERIOR RECEPTACLES
SPARE					20	41			X	42	--					SPACE

	Connected Load				Demand	Demand Load			
Load Description	**ØA**	**ØB**	**ØC**	**Total**	**Factor**	**ØA**	**ØB**	**ØC**	**Total**
Lighting or Continous Load (Volt-Amps)	1368	1316	2480	5164	1.00	1368	1316	2480	5164
180VA Receptacle Load (Volt-Amps)	2860	4200	5280	12340	1.00 (First 10kVA)	2318	3404	4279	10000
	Amount over 10kVA			2340	0.50 (> 10kVA)	271	398	501	1170
Continuous Load (Volt-Amps)	500	0	0	500	1.00	500	0	0	500
Non-Continuous Load (Volt-Amps)	3700	4500	1500	9700	1.00	3700	4500	1500	9700
Total Load (kVA)	8.43	10.02	9.26	27.70	**125% of Light/Cont and Recept**	8.16	9.62	8.76	26.53
Total Ampacity (Amps)	70.2	83.4	77.1	76.9	**(<10kVA) load plus other load**	67.9	80.1	72.9	73.6
Minimum Feeder Sizing (Amps)	77.9	93.2	91.2	87.4	**<---- per NEC Article 215.2 ---->**	75.6	89.9	87.0	84.2

Receptacle Demand Factor per Article 220.44 of the National Electrical Code.

Panel Designation: RP-B | **Main:** 125 | **P-P Voltage:** 208
Panel Location: MAIN EL. RM. | **Bussing:** 125A | **P-N Voltage:** 120
Fed From: ATS | **Ground Bus:** STANDARD | **Phase:** 3
Feeder Size: REFER TO ONE LINE DIAGRAM | **Mounting:** SURFACE | **Wire:** 4
Neutral: 100% | **Min SC Interrupting Rating:** 10kAIC

Remarks	Light Load	Recept Load	Cont Load	nonC Load	OC Prot	CKT	Ø A	Ø B	Ø C	CKT	OC Prot	nonC Load	Cont Load	Recept Load	Light Load	Remarks
RECEPTACLE		540			20	1	X			2	20	1680				FURNACE F1
RECEPTACLE		540			20	3		X		4	20	1080				FURNACE F2
RECEPTACLE		540			20	5			X	6	20		500			DWH-1
SPARE					20	7	X			8	20	1040				ECUH-1
SPARE					20	9		X		10		1040				
SPARE					20	11			X	12	20	100				EF-1 MENS & WOMENS
SPARE					20	13	X			14	20	500				RCP-1
SPARE					20	15		X		16	20	1500				HAND DRYER
CU-1			3400		50	17			X	18	20	1500				HAND DRYER
			3400			19	X			20	20					SPARE
CU-2			1750		25	21		X		22	20					SPARE
			1750			23			X	24	20					SPARE
BLOCK HEATER				500	20	25	X			26	20					SPARE
				500		27		X		28	100					RP-B1 (STORAGE BUILDING)
GENERATOR BATTERY CHARGER				500	20	29			X	30						

	Connected Load				Demand	Demand Load			
Load Description	**ØA**	**ØB**	**ØC**	**Total**	**Factor**	**ØA**	**ØB**	**ØC**	**Total**
Lighting or Continous Load (Volt-Amps)	0	0	0	0	1.00	0	0	0	0
180VA Receptacle Load (Volt-Amps)	540	540	540	1620	1.00 (First 10kVA)	540	540	540	1620
	Amount over 10kVA			0	0.50 (> 10kVA)	0	0	0	0
Continuous Load (Volt-Amps)	3400	1750	5650	10800	1.00	3400	1750	5650	10800
Non-Continuous Load (Volt-Amps)	3720	4120	2100	9940	1.00	3720	4120	2100	9940
Total Load (kVA)	7.66	6.41	8.29	22.36	**125% of Light/Cont and Recept**	7.66	6.41	8.29	22.36
Total Ampacity (Amps)	63.8	53.4	69.0	62.1	**(<10kVA) load plus other load**	63.8	53.4	69.0	62.1
Minimum Feeder Sizing (Amps)	64.9	54.5	70.2	63.2	**<---- per NEC Article 215.2 ---->**	64.9	54.5	70.2	63.2

Receptacle Demand Factor per Article 220.44 of the National Electrical Code.

PANEL NAME: RP-B1 | **MAIN:** 100A | **L-L VOLTAGE:** 208
LOCATION: GARAGE | **BUSSING:** 100A | **L-N VOLTAGE:** 120
SOURCE: RP-B | **GROUND BUS:** STANDARD | **PHASE:** 1
FEEDER SIZE: REFER TO ONE LINE DIAGRAM | **MOUNTING:** SURFACE | **WIRE:** 3
NEUTRAL: 100% | **MIN SC INTERRUPT RATING:** 10kAIC

LOAD DESCRIPTION	LIGHTING LOAD	RECEPTACLE LOAD	CONTINUOUS LOAD	NON-CONTINUOUS LOAD	OCPD	CKT	L1	L2	CKT	OCPD	NON-CONTINUOUS LOAD	CONTINUOUS LOAD	RECEPTACLE LOAD	LIGHTING LOAD	LOAD DESCRIPTION
GARAGE DOOR OPENER		600			20	1	■		2	30	2500				EUH-1 (5KW)
GARAGE DOOR OPENER		600			20	3		■	4		2500				
RECEPTACLE GARAGE - GFI		180			20	5	■		6	30	2500				EUH-1 (5KW)
RECEPTACLES GARAGE		360			20	7		■	8		2500				
RECEPTACLES GARAGE		360			20	9	■		10	20	1000				EF-2
IRRIGATION CONTROL PANEL				500	20	11		■	12	20					SPARE
GARAGE LIGHTING	220				20	13	■		14	20					SPARE
GARAGE SOFFIT LIGHTING	120				20	15		■	16	20					SPARE
SPARE					20	17	■		18	20					SPARE
SPARE					20	19		■	20	20					SPARE
						21	■		22						
						23		■	24						

	CONNECTED LOAD				DEMAND	DEMAND LOAD			
LOAD TYPE	**L1**		**L2**	**TOTAL**	**FACTOR**	**L1**		**L2**	**TOTAL**
LIGHTING LOAD (VA)	220		120	340	1.00	220		120	340
RECEPTACLE LOAD (VA)	1140		960	2100	1.00 (FIRST 10KVA)	1140		960	2100
	Amount over 10kVA			0	0.30 (> 10KVA)	0		0	0
CONTINUOUS LOAD (VA)	0		0	0	1.00	0		0	0
NON-CONTINUOUS (VA)	6000		5500	11500	0.80	4800		4400	9200
TOTAL LOAD (KVA)	7.36		6.58	13.94	**125% OF LIGHT/CONT AND RECEPT**	6.16		5.48	11.64
TOTAL AMPACITY (A)	61.3		54.8	67.0	**(<10KVA) LOAD PLUS OTHER LOAD**	51.3		45.7	56.0
MINIMUM FEEDER SIZE (A)	64.2		57.1	70.0	**<---- PER NEC ARTICLE 215.2 ---->**	54.2		47.9	58.9

RECEPTACLE DEMAND FACTOR PER ARTICLE 220.44 OF THE NEC

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DDA 2016 PLACEMAKING PROJECT
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ELECTRICAL PANEL SCHEDULES

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: DNM/JRS
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