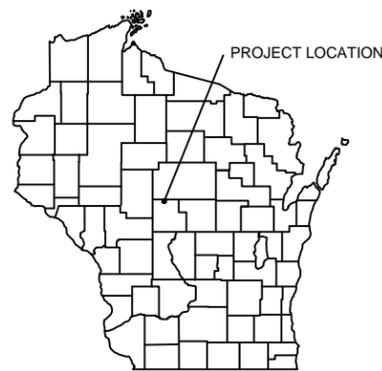
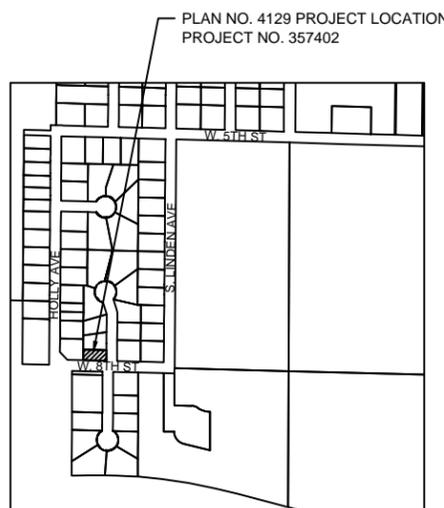


CITY OF MARSHFIELD CONTRACT 2015-05

PLAN NO. 4129 - 8TH STREET LIFT STATION REPLACEMENT



PROJECT LOCATION



PLAN NO. 4129 PROJECT LOCATION
PROJECT NO. 357402

LOCATION MAP
NOT TO SCALE

SHEET INDEX

G - GENERAL SHEETS

G 1	TITLE SHEET
G 2	SANITARY SEWER DETAILS
G 3	EROSION CONTROL DETAILS
G 4	INLET PROTECTION & MISCELLANEOUS DETAILS
G 5 - 7	STREET REPAIR STANDARDS
G 8	LIFT STATION ABANDONMENT

8TH STREET LIFT STATION REPLACEMENT - PLAN NO. 4129

P 1	EXISTING SITE PLAN
P 2	PROPOSED SITE PLAN
P 3	PROPOSED GRADING PLAN
PP 1	WEST 8TH STREET PLAN AND PROFILE
PM 1	SANITARY LIFT STATION DETAILS
PM 2	SANITARY LIFT STATION PLAN
E 1	ELECTRICAL TITLE SHEET
E 2	ELECTRICAL SITE PLAN
E 3	EXISTING ELECTRICAL ONE LINE DIAGRAM
E 4	PROPOSED ELECTRICAL ONE LINE DIAGRAM
E 5	ELECTRICAL P&ID
E 6	ELECTRICAL DETAILS
E 7	ELECTRICAL DETAILS NO. 2

LEGEND

	EXISTING WATER MAIN
	EXISTING GATE VALVE & HYDRANT
	WATER SERVICE & CURB STOP
	PROPOSED WATERMAIN, VALVE, & HYDRANT
	PROPOSED WATER SERVICE & CURB STOP
	EXISTING SANITARY SEWER & MANHOLE
	EXISTING CAPPED SANITARY SEWER LATERAL
	EXISTING FORCEMAIN
	EXISTING STORM SEWER & INLET
	PROPOSED STORM SEWER & INLET
	PROPOSED MANHOLE & SEWER MAIN
	BURIED ELECTRIC
	BURIED GAS & VALVE
	BURIED CABLE TELEVISION
	BURIED TELEPHONE
	BURIED FIBER OPTICS
	OVERHEAD UTILITY
	RAILROAD TRACKS
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	EXISTING SIDEWALK
	PROPOSED SIDEWALK
	EXISTING CULVERT PIPE
	PROPOSED CULVERT PIPE
	FENCE LINE
	DRAINAGE ARROW
	SILT FENCE
	RIGHT-OF-WAY
	BASELINE
	PROPERTY LINE
	TREE LINE
	BENCHMARK
	IRON PIPE
	IRON ROD
	CONTROL POINT
	UTILITY POLE & GUY
	SOIL BORING
	LIGHT POLE
	PEDESTAL
	STREET SIGN
	MAILBOX
	FLAGPOLE
	TREE - DECIDUOUS
	TREE - CONIFEROUS
	TREE TO BE REMOVED
	TREE STUMP

UTILITIES

GAS:
WE ENERGIES
ATTN: CRAIG KNAUF
1921 EIGHTH STREET SOUTH
WISCONSIN RAPIDS, WI 54494-5217
OFFICE: 715-421-7267
CELL: 715-213-1954
EMAIL: CRAIG.KNAUF@WE-ENERGIES.COM

ELECTRIC, FIBER OPTIC & GAS:
MARSHFIELD UTILITIES
ATTN: NICK KUMM
2000 S. RODDIS AVE
P.O. BOX 670
MARSHFIELD, WI 54449
TELEPHONE: 715-387-1195 EXT. 332
MOBILE: 715-305-3794
EMAIL: KUMM@MARSHFIELDUTILITIES.ORG

WATER:
MARSHFIELD UTILITIES
ATTN: DAVE WASSERBURGER
2000 S. RODDIS AVE
P.O. BOX 670
MARSHFIELD, WI 54449
TELEPHONE: 715-387-1195 EXT. 353
EMAIL: WASSER@MARSHFIELDUTILITIES.ORG

ENGINEERING:
CITY OF MARSHFIELD
ATTN: TIM CASSIDY, P.E.
630 S. CENTRAL AVE
P.O. BOX 727
MARSHFIELD, WI 54449
TELEPHONE: 715-387-8424

WASTEWATER:
CITY OF MARSHFIELD
ATTN: SAM WARP
2601 E. 34TH STREET
MARSHFIELD, WI 54449
TELEPHONE: 715-591-2022

CATV:
CHARTER COMMUNICATIONS
ATTN: JESSE GRUNY
853 MCINTOSH STREET
WAUSAU, WI 54403
OFFICE: 715-651-5605

TELEPHONE:
FRONTIER COMMUNICATIONS
ATTN: TOM LOCKE
521 4TH STREET
WAUSAU, WI 54403
TELEPHONE: 715-847-1550

DIGGERS HOTLINE

Dial **811** or (800) 242-8511

www.DiggersHotline.com

NOTE:
UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND CONTRACTOR SHALL HAVE APPROPRIATE UTILITY MARK EXACT LOCATIONS PRIOR TO CONSTRUCTION.

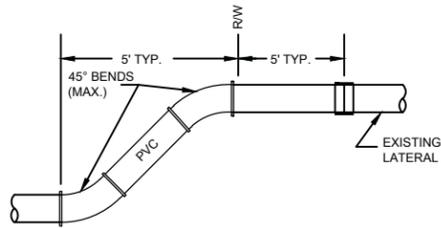
PROJECT NO.:	584084	SCALE:	AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE:	MAY 2015	DRAWN BY:	DWR				
F.B.:		CHECKED BY:	TRT				
PLOT DATE: 10/20/15, P:\580s\58400584083\CADD\Construction Documents\Promoted Drawings\Sanitary Reconstruction\GENERAL SHEETS.dwg							

MSA
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave. Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

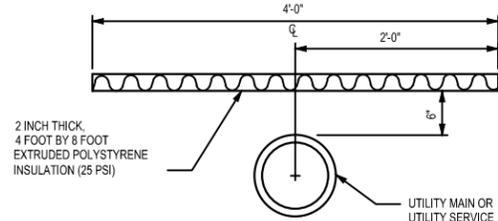
TITLE SHEET

CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
WOOD COUNTY, WISCONSIN

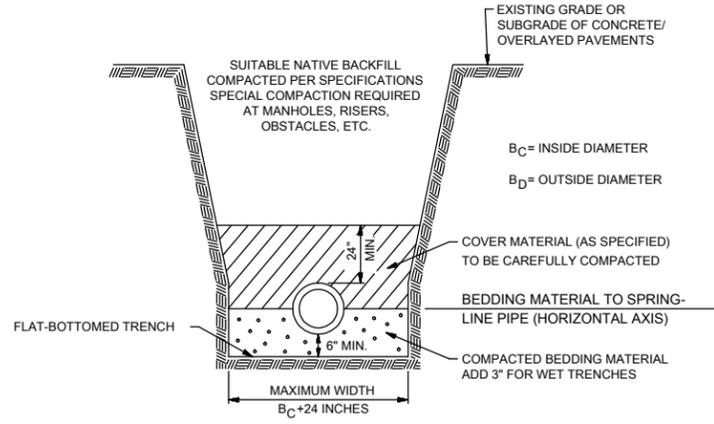
FILE NO.
584084
SHEET
G 1



DROP CONNECTION TO EXISTING LATERAL



STANDARD INSTALLATION



NOTES:
BEDDING AND COVER MATERIAL: CRUSHED STONE CHIPS MEETING THE FOLLOWING GRADING REQUIREMENTS.

SIEVE SIZE	PERCENTAGE PASSING BY WEIGHT
1/2"	100
3/4"	90 TO 100
NO. 8	0 TO 15
NO. 30	0 TO 3

TRENCH WIDTH: THE MAXIMUM TRENCH WIDTH AT THE TOP OF THE PIPE SHALL BE $B_c + 24$ INCHES.
SPECIAL COMPACTION REQUIRED AT MANHOLES, RISERS, ETC.

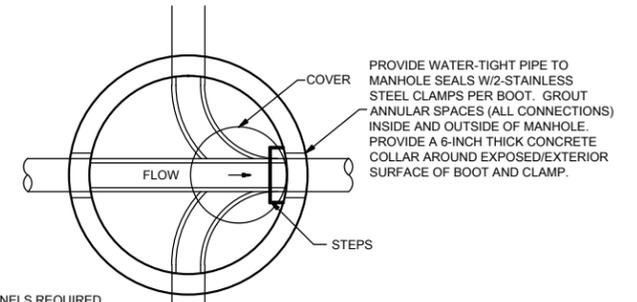
**TYPICAL TRENCH SECTION
SANITARY SEWER CONSTRUCTION
GRAVITY MAINS, LATERALS AND FORCE MAINS**

* AT APPROX. 20' UPSTREAM OF MANHOLES, INSTALL APPROVED NATIVE MATERIAL (CLAY TRENCH PLUG) TO FULL TRENCH DEPTH, 6' ALONG PIPE, ACROSS FULL TRENCH WIDTH, IN LEU OF BEDDING AND COVER MATERIAL.

SPECIFICATIONS:

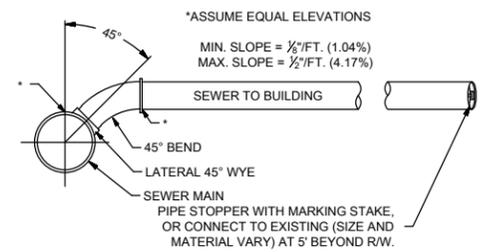
- MANUFACTURED TO A.S.T.M. C-478 SPECIFICATIONS
- CONCRETE STRENGTH - 4000 P.S.I.
- STEEL DESIGN IN ACCORDANCE WITH A.S.T.M. C-478 0.12 SQ. IN./FT.
- ALL REINFORCING IS DESIGNED FOR MIN. 1" COVER
- STEP-STEEL, PLASTIC COATED 16" ON CENTER
- MONOLITHIC BASE WITH INLET AND OUTLET OPENING AS REQUIRED
- 48" DIAMETER MANHOLE WILL ACCOMMODATE A 24" DIAMETER PIPE PASSING STRAIGHT THROUGH.
- 48" DIAMETER-5" WALL 890 LBS./FT.

NOTE: ALL STRUCTURES AND COMPONENTS SHALL BE LABELED BY THE MANUFACTURER IN ACCORDANCE WITH PLAN/SCHEDULE IDENTIFICATION

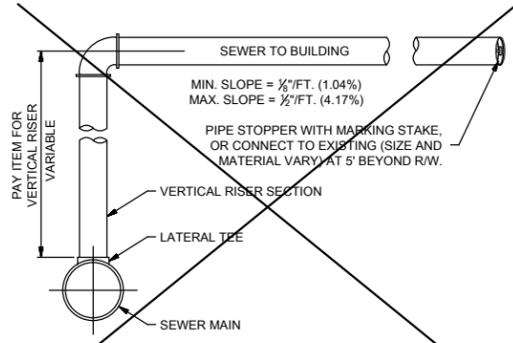


DEFINED FLOW CHANNELS REQUIRED, FROM EACH INFLOWING PIPE TO THE DISCHARGE PIPE. (ALSO REQUIRED FOR DEAD-END MANHOLES.) ALL FLOWLINES SHALL BE SMOOTH.

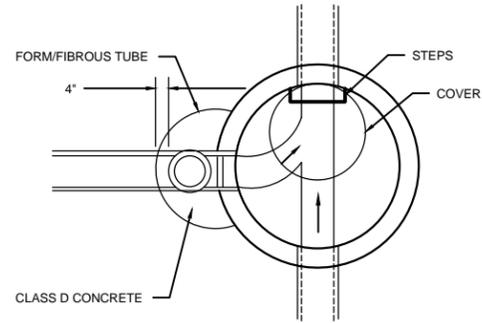
NOTE: INSIDE DROP CONNECTIONS SHALL NOT BE INSTALLED WITHIN 90° OF THE STEPS. SEE DROP MANHOLE DETAIL.



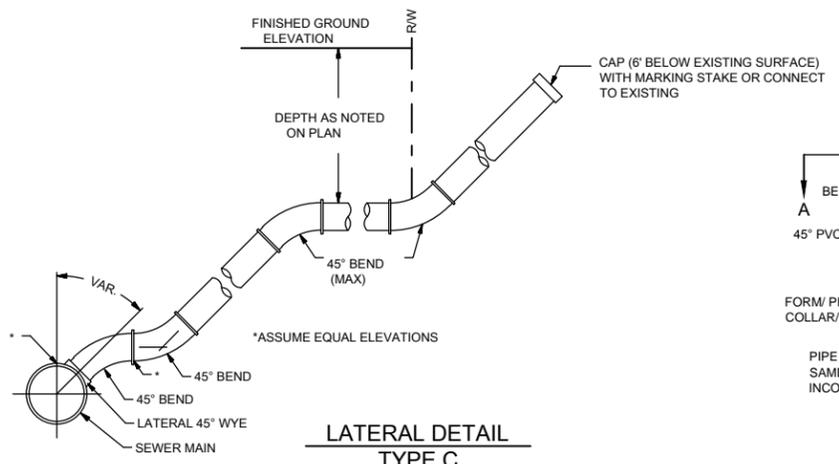
**LATERAL DETAIL
TYPE A**



**LATERAL/RISER DETAIL
TYPE B**



**SECTION A-A
MANHOLE, TYPE 1 OUTSIDE DROP DETAIL**

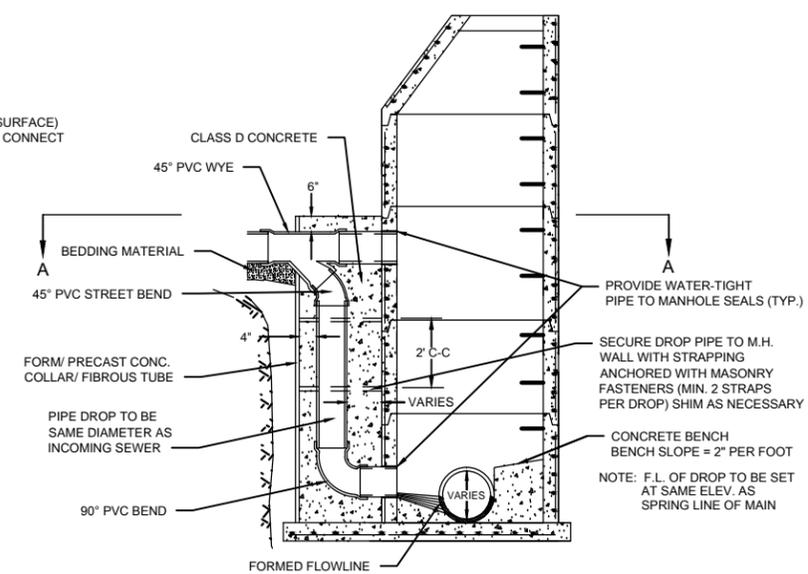


**LATERAL DETAIL
TYPE C**

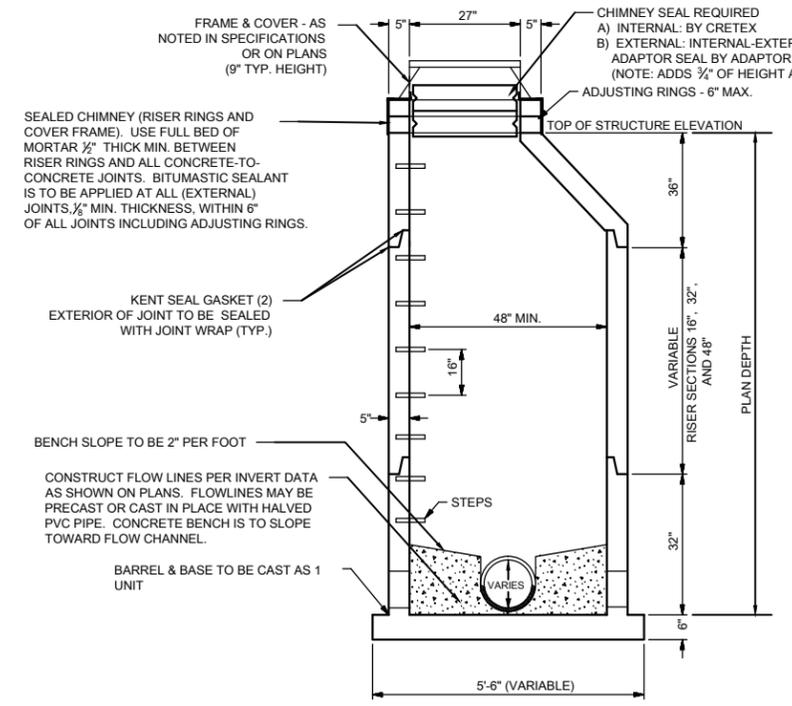
NOTES: MAINTAIN 30° HORIZONTAL CLEARANCE WHERE SANITARY SEWER LATERALS PARALLEL WATER SERVICES.

USE COVER MATERIAL AS BACKFILL FOR VERTICAL RISER

FERNCO CONNECTOR IF EXISTING LATERAL IS NOT PVC.
GASKETED COUPLING IF EXISTING LATERAL IS PVC.



**MANHOLE, TYPE 1 SPECIAL OUTSIDE DROP
DETAILS NOT SHOWN SHALL CONFORM TO SANITARY MANHOLE, TYPE 1**



PRE-CAST CONCRETE SANITARY MANHOLE, TYPE 1 DETAIL

NOTE: LENGTH OF SANITARY SEWER MAINS = MANHOLE CENTER TO MANHOLE CENTER.
PIPE SLOPE CALCULATED FROM INSIDE MANHOLE WALL TO INSIDE MANHOLE WALL.
INVERT ELEVATION IS AT INSIDE MANHOLE WALL.
PAY DEPTH IS FROM BOTTOM OF CASTING TO LOWEST INVERT.

PROJECT NO.	584084	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE:	MAY 2015	DRAWN BY:	DWR			
F.B.:		CHECKED BY:	TRT			
PLOT DATE:	10/20/15	P:\5808\584\00584083\CADD\Construction Documents\Promoted Drawings\Sanitary Reconstruction\GENERAL SHEETS.dwg				

MSA
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave. Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

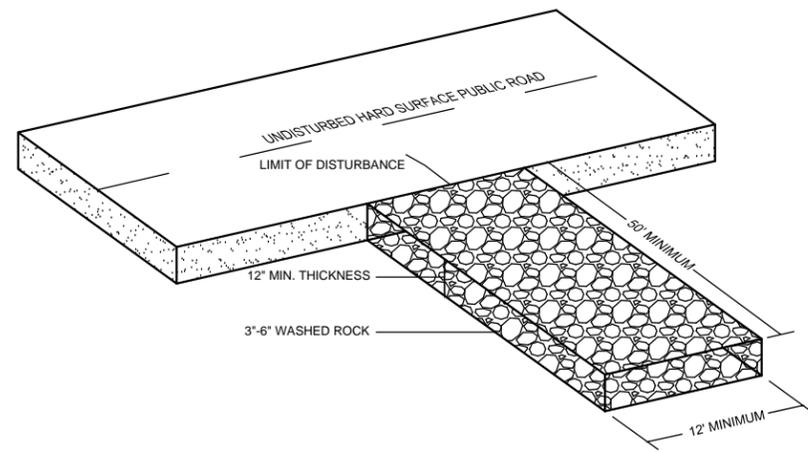
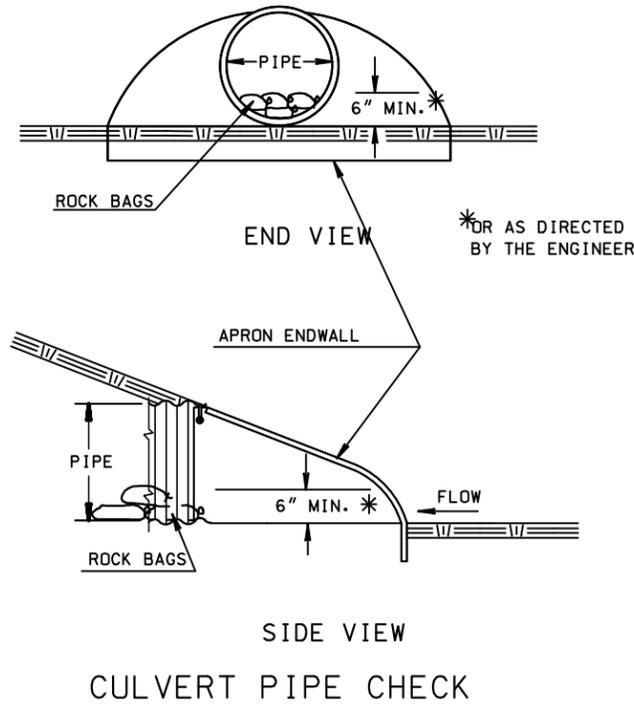
SANITARY DETAILS

**CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
WOOD COUNTY, WISCONSIN**

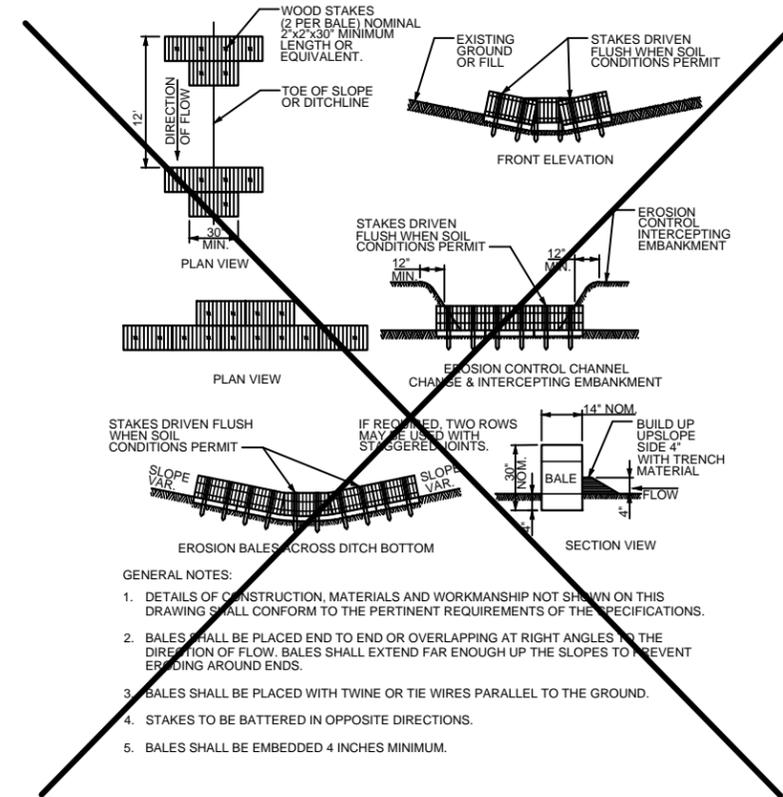
FILE NO.
584084
SHEET
G 2

CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS

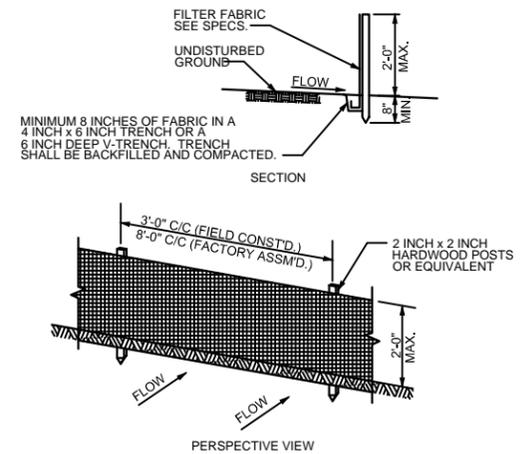
- 1.) SECTION NR216.46 OF WISCONSIN STATE ADMINISTRATIVE CODE IDENTIFIES REQUIREMENTS FOR CONSTRUCTION SITE AND POST-CONSTRUCTION EROSION CONTROL. IT IS THE INTENT OF THESE PLANS TO SATISFY THESE REQUIREMENTS. THE METHODS AND STRUCTURES USED TO CONTROL EROSION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL IMPLEMENT AN APPROPRIATE MEANS OF CONTROLLING EROSION DURING SITE OPERATION AND UNTIL THE VEGETATION IS RE-ESTABLISHED. ADJUSTMENTS TO THE CONTROL SYSTEM SHALL BE MADE AS REQUIRED.
- 2.) ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE WISCONSIN DNR'S CONSERVATION PRACTICE STANDARDS. THESE STANDARDS ARE PERIODICALLY UPDATED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REFERENCE THE MOST RECENTLY RELEASED STANDARD.
- 3.) THE INFORMATION IS ONLY ONE PART OF THE OVERALL EROSION CONTROL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY ALSO BE SHOWN ON THE PLAN SHEETS AND IN THE ACCOMPANYING SPECIFICATIONS.
- 4.) ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE OWNER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
- 5.) THE AREA OF EROSION LAND EXPOSED TO THE ELEMENTS BY GRUBBING, EXCAVATION, TRENCHING, BORROW AND FILL OPERATIONS AT ANY ONE TIME SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. FOR ANY DISTURBED AREA THAT REMAINS INACTIVE FOR GREATER THAN 7 WORKING DAYS, OR WHERE GRADING WORK EXTENDS BEYOND THE PERMANENT SEEDING DEADLINES, THE SITE MUST BE TREATED WITH TEMPORARY STABILIZATION MEASURES SUCH AS SOIL TREATMENT, TEMPORARY SEEDING AND/OR MULCHING. ALL DISTURBED AREAS SHALL BE TREATED WITH PERMANENT STABILIZATION MEASURES WITHIN 3 WORKING DAYS OF FINAL GRADING.
- 6.) ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME 0.5 INCHES OF RAIN IS PRODUCED. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS. THIS APPROACH ACKNOWLEDGES THE DIFFICULTY OF WORKING IN WET CONDITIONS AS NECESSARY FOR PREVENTING THE IRRETRIEVABLE "FIRST FLUSH" OF SEDIMENT INTO ADJACENT WATERWAYS, DEGRADING WATER QUALITY AND FISH HABITAT.
- 7.) ALL EROSION CONTROL DEVICES SHALL BE PROPERLY INSTALLED PRIOR TO ANY SOIL DISTURBANCE.
- 8.) GRUBBING AND GRADING OPERATIONS SHALL BE PERFORMED IN PROPER SEQUENCE WITH OTHER WORK TO MINIMIZE EROSION.
- 9.) ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED OF AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
- 10.) WIND EROSION SHALL BE KEPT TO A MINIMUM DURING CONSTRUCTION. WATERING, MULCH, OR A TACKING AGENT MAY NEED TO BE UTILIZED TO PROTECT NEARBY RESIDENCES AND WATER RESOURCES.
- 11.) CHANNELIZED RUNOFF FROM ADJACENT AREAS PASSING THROUGH THE SITE SHALL BE DIVERTED AROUND DISTURBED AREAS, IF PRACTICAL.
- 12.) THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT SOILS FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. PAVED SURFACES ADJACENT TO CONSTRUCTION SITE VEHICLE ACCESS SHALL BE SWEEPED AND / OR SCRAPED (NOT FLUSHED) PERIODICALLY TO REMOVE SOIL, DIRT AND / OR DUST.
- 13.) EROSION CONTROLS SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF TEMPORARY STOCKPILES. ANY SOIL STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING. ALL STOCK PILES SHALL BE PLACED AT LEAST 75 FEET FROM STREAMS OR WETLANDS.
- 14.) EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.):
 - a. PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
 - b. BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
 - c. DISCHARGE OF TRENCH WATER OR DEWATERING EFFLUENT MUST BE PROPERLY TREATED TO REMOVE SEDIMENT IN ACCORDANCE WITH THE WDNR CONSERVATION PRACTICE STANDARD 1061 - DEWATERING OR A SUBSEQUENT WDNR DEWATERING STANDARD PRIOR TO DISCHARGE INTO A STORM SEWER, DITCH, DRAINAGEWAY, OR WETLAND OR LAKE.
- 15.) ALL DRAINAGE CULVERTS, STORM DRAIN INLETS, MANHOLES, OR ANY OTHER EXISTING STRUCTURES WHICH COULD BE DAMAGED BY SEDIMENTATION SHALL BE PROTECTED ACCORDING TO THE VARIOUS METHODS PROVIDED IN THE PRINTED CONSERVATION PRACTICE STANDARDS.
- 16.) ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
- 17.) THE FIRST SIX WEEKS AFTER INITIAL STABILIZATION (E.G. PLACEMENT OF SEED AND MULCH, EROSION MAT, SOD) A DISTURBED AREA SHALL INCLUDE WATERING PROVISIONS OF ALL NEWLY SEEDED AND MULCHED AREAS WHENEVER 7 DAYS ELAPSE WITHOUT A RAIN EVENT.
- 18.) WHEN THE DISTURBED AREA HAS BEEN STABILIZED BY PERMANENT VEGETATION OR OTHER MEANS, TEMPORARY BMP'S SUCH AS SILT FENCES, STRAW BALES, AND SEDIMENT TRAPS SHALL BE REMOVED AND THESE AREAS STABILIZED.
- 19.) ALL TEMPORARY BEST MANAGEMENT PRACTICES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED.
- 20.) ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH SEED AND MULCH UNLESS OTHERWISE SPECIFIED. A MINIMUM OF 4 TO 6 INCHES OF TOPSOIL SHALL BE APPLIED TO ALL AREAS TO BE SEEDED OR SODDED.



VEHICLE TRACKING PAD
NTS



EROSION BALES IN DRAINAGE WAY DETAIL
NTS



TYPICAL SILT FENCE INSTALLATION AT SITE PERIMETER DETAIL
NTS

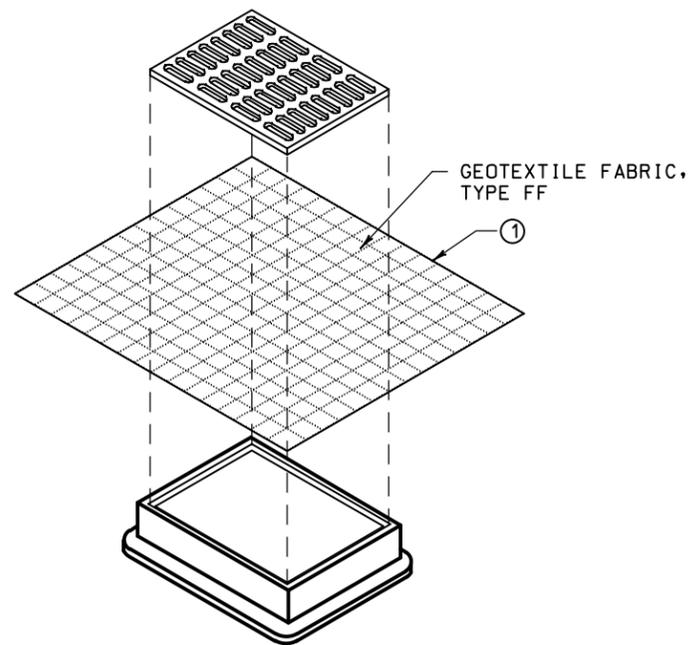
PROJECT NO.:	584084	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE:	MAY 2015	DRAWN BY:	DWR			
F.B.:		CHECKED BY:	TRT			
PLOT DATE:	10/20/15	P:\5808\584\00584083\CADD\Construction Documents\Promoted Drawings\Sanitary Reconstruction\GENERAL SHEETS.dwg				

MSA
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave. Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

EROSION CONTROL

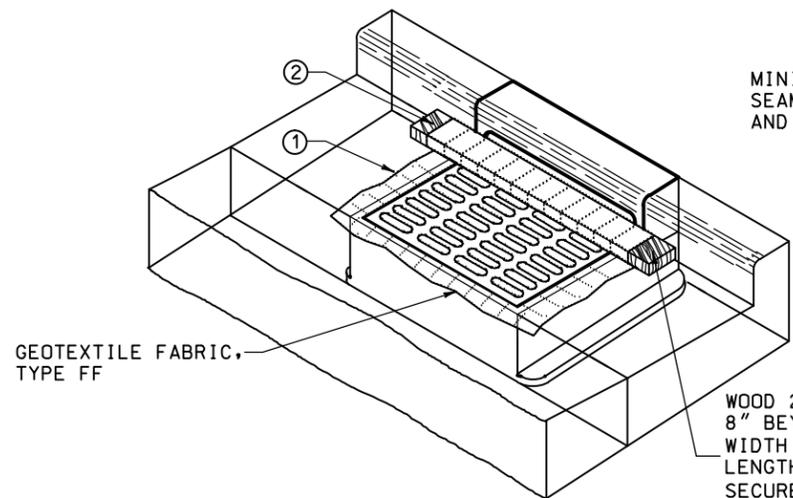
CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
WOOD COUNTY, WISCONSIN

FILE NO.
584084
SHEET
G 3

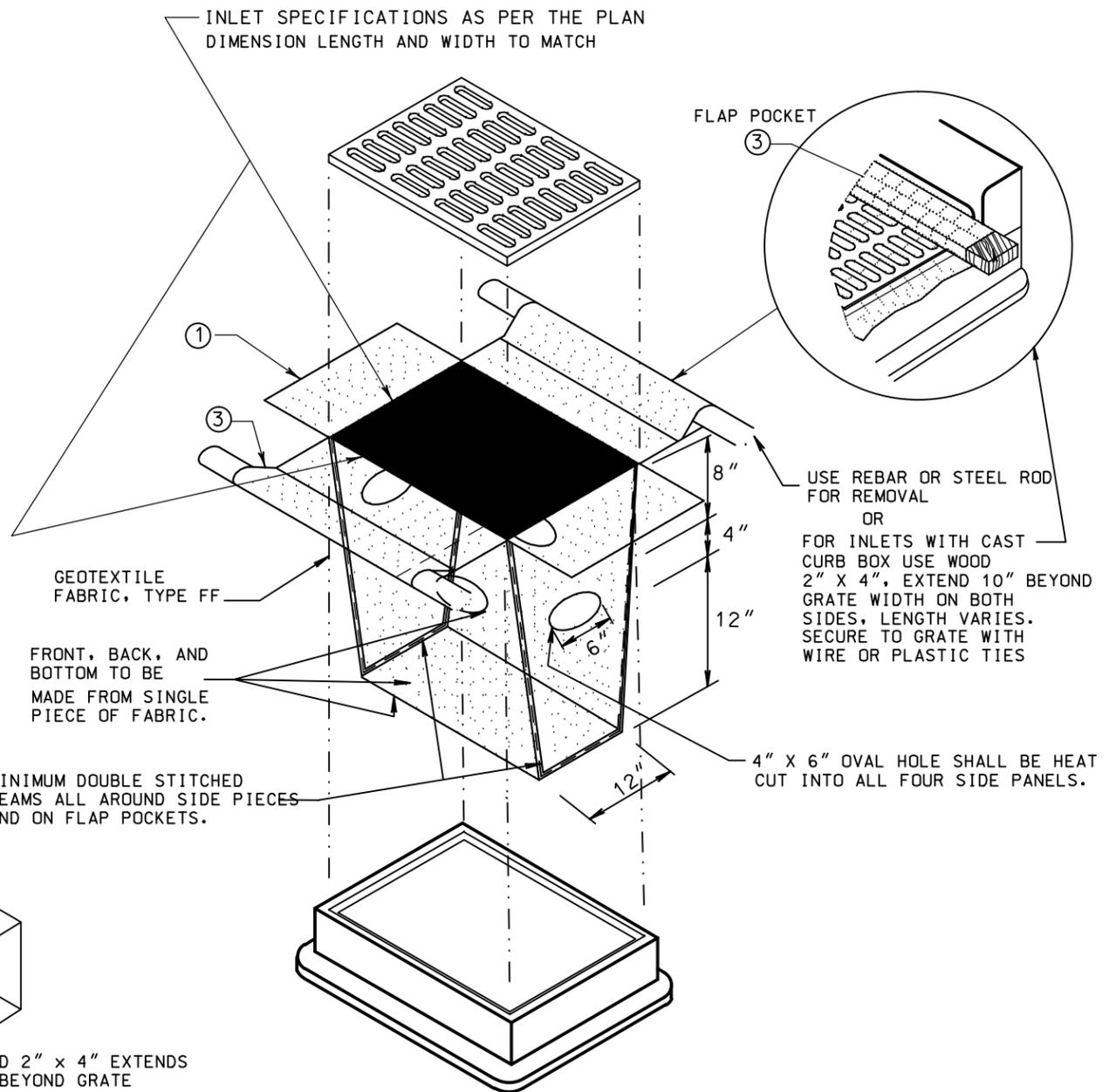


**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

PROJECT NO.:	584084	SCALE:	AS SHOWN	NO.:		DATE:		REVISION:		BY:	
PROJECT DATE:	MAY 2015	DRAWN BY:	DWR								
F.B.:		CHECKED BY:	TRT								
PLOT DATE:	10/20/15	P:\5808\584\00584083\CADD\Construction Documents\Promoted Drawings\Sanitary Reconstruction\GENERAL SHEETS.dwg									

MSA
 TRANSPORTATION • MUNICIPAL
 DEVELOPMENT • ENVIRONMENTAL
 146 North Central Ave. Marshfield, WI 54449
 715-384-2133 1-877-204-0572 Fax: 715-384-9787
 Web Address: www.msa-ps.com
 © MSA Professional Services, Inc.

INLET PROTECTION DETAILS

CITY OF MARSHFIELD CONTRACT 2015 - 05
 CITY OF MARSHFIELD
 WOOD COUNTY, WISCONSIN

FILE NO.
584084
 SHEET
G 4

**CITY OF MARSHFIELD
STANDARDS FOR REPAIR OF STREET PAVEMENTS**

I. All Pavement Repairs

- All work and materials shall comply with the City of Marshfield Standard Specifications for Public Works Construction (current year edition, available on the City website, [http://ci.marshfield.wi.us/public works/files/spec.pdf](http://ci.marshfield.wi.us/public%20works/files/spec.pdf)), Concrete/Pavement Repair and Replacement detail drawings, and these standards; and shall be the responsibility of the prime contractor or permittee.
- Backfill material shall be suitable native material (typically clay) compacted in lifts.
- Pavement, base and subbase materials shall be replaced in-kind. Match existing thicknesses of base and pavement if the existing thicknesses exceed the minimum thicknesses as detailed for asphalt or concrete pavements.
- Roadway underdrains, if encountered shall be repaired in-kind (including pipe, fabric, media, etc.).
- Longitudinal joints shall be parallel to the centerline of the travelled way, but shall not be located in a wheel path. Transverse joints shall be perpendicular to longitudinal joints. Skewed joints will only be allowed if approved by the City Engineer.
- All repaired surface areas shall be flush with existing pavements and provide a smooth ride along with proper drainage. Repair areas that do not satisfy these requirements shall be removed and replaced.
- Seal all new joints within the repair area, and perimeter joints between the repair area and existing pavement. Reseal existing joints beyond the repair area if disturbed by construction. Completely fill the joint with hot-pour elastic sealant.
- Re-establish all pavement markings removed within the repair area, and beyond if disturbed by construction. Pavement markings shall be repainted in-kind (i.e. existing epoxy/preformed plastic/latex pavement markings shall be replaced with new epoxy/preformed plastic/latex pavement markings).
- Roadway shoulders shall be restored if within the repair area or disturbed by construction. Shouldering material shall be replaced in-kind (i.e. paved asphalt/recycled asphalt millings/gravel shall be replaced with paved asphalt/recycled asphalt millings/gravel).

II. Concrete Pavement

A. Sawing

- Saw existing concrete pavement, full depth.
- Minimize over-sawing into adjacent pavements/panels. Do not oversaw beyond the repair area unless the saw blade is within an existing joint.
- If existing pavement is 5 years old or less, then saw/remove full panel(s), existing joint to existing joint.
- If existing pavement is 6 years old or older, then saw as follows:
 - Provide 6' minimum distance between an existing joint or crack and the proposed saw cut for the repair area.
 - Repair area shall be at least 6' for both longitudinal and transverse directions.
 - Rule of thumb: Don't take anything less than 6' and don't leave anything less than 6'.
 - Saw to remove defective or spalling (existing) joints.

B. Chipped Joints

- Minimize the possibility for joints or sawed edges to become chipped or damaged through utilization of secondary saw cuts and careful removal (excavation, backfilling, grading) procedures.
- Chips 1" or less horizontally shall be repaired unless the existing street pavement joints are spalled/widened to this degree.
- Chips between 1" and 2" horizontally may be repaired if existing street pavement joints are spalled/widened to this degree. If, in the opinion of the City Engineer, repairing the chip would be detrimental to the street as compared to the general condition of said street pavement, then re-saw the joint/edge, for the entire length ("Boxing-out" around the chip is not allowed).
- Chips larger than 2" horizontally will require re-sawing the joint/edge for the entire length.
- Joints/sawed edges with multiple chips will typically require re-sawing the joint/edge for the entire length.
- Use VersaSpeed as manufactured by the Euclid Chemical Company for repairing chipped concrete. Follow the manufacturer's installation directions for use.
- Note: Resawing may substantially increase the size of the repair, as necessary to comply with the saw cut location requirements.

C. Minimum Thicknesses

- Gravel base shall not be less than 6", compacted.
- Concrete pavement shall not be less than 8".

D. Dowel Bars

- All transverse joints shall be doweled, unless the thickness of the existing concrete is less than 7", thence tie bars shall be installed.
- Dowel bars shall be 1-1/4" x 18", Epoxy Coated Steel.
- When drilled into existing pavement, drill 1-3/8" x 9" holes, spaced 15" on-center, and anchored with an epoxy.
- When set into new pavement, use baskets with bars spaced 12" on-center.

E. Tie Bars

- All longitudinal joints shall be reinforced with pavement ties.
- When drilled into existing pavement, drill (1/8" larger than bar) 6" deep and use No. 6 Epoxy Coated Rebar, 12" long, spaced 30" on-center, and anchored with an epoxy.
- When set into new pavement, use No. 4 Epoxy Coated Rebar, 24" long, spaced 30" on-center.

F. Ready Mix Concrete

- Concrete mix shall be from an approved ready mix concrete supplier.
- Design of the mix shall comply with current City of Marshfield Standard Specifications for Public Works Construction, Section 10, and modifications thereof. Air entrainment and Type II cement are required.
- Use of 9-bag or Special High Early Strength mixes is not allowed.
- Use of chloride or accelerating admixtures to increase early strength development or decrease set time is not allowed.
- Preparation, forming, handling, placing, finishing, curing and protecting shall comply with the City's Standard Specifications. Curing compound shall be Tri-Kote 26, or approved equal, and shall be spray applied.
- Open to traffic after concrete has attained 3000 psi compressive strength as verified through cylinder testing (arterial and collector streets) or equivalent curing days for other locations.

III. Asphalt Pavement

- Asphalt pavement may be sawed before or after excavation, however, the edge(s) of existing asphalt pavement bounding the repair area must be vertical and undamaged when permanent repairs are made.
- Minimum thicknesses for asphalt pavement repairs shall be not less than 9" of gravel (compacted) and not less than 3" of asphalt.
- Asphalt repair patches for locations within the travelled way of collector and arterial streets; and all other streets of which the surface is 5 years old or less, shall be at least 10' wide (transverse dimension) and 10' long as a minimum (allows placement of asphalt by a paver).
- Hot mix asphalt for streets, alleys, driveways, etc. shall be placed and compacted in lifts.
- Damage to existing pavement beyond the excavation must be repaired as part of the patch. Damage may include cracking, separation, lifted mat, scratches, gouges, imprints, etc.
- Asphalt surface treatments such as chip seal treatment, slag seal treatment, coat tar or asphalt emulsion sealant, etc. shall be restored where disturbed by construction.

IV. Asphalt Overlaid on Concrete Base

- Remove all broken, damaged or unsound concrete. Full depth sawing of the concrete pavement is not required.
- Transverse joint reinforcement: Use drilled tie bars, No. 6 x 12", spaced 12" on-center.
- Longitudinal joint reinforcement: Use drilled tie bars, No. 6 x 12", spaced 30" on-center.
- If brick pavers are found underlying the asphalt surface, then remove all loose bricks and pour concrete base against remaining stable bricks (reinforcement or ties not required).
- All other requirements for Concrete Pavement shall apply.
- Saw and remove asphalt beyond the base concrete repair area.
- Location of asphalt joints shall comply with requirements for asphalt pavement.
- All other requirements for Asphalt Pavement shall apply.
- Note: Curb and gutter repair shall be done such that the pan will be overlaid with asphalt, however, the curb head shall remain exposed (including depressed curb head through driveways).

V. Subsurface Utility Excavation (SUE)/Potholing

- Use air (vacuum) within pavement structure. Use air or water (jetting) in other R/W areas beyond the pavement structure.
- Full depth core saw existing pavement, 12" diameter round, typical. Remove and save the 'core'.
- Provide/use a temporary protective steel ring to protect the edge of the opening. Provide/use a temporary round plate (with skirt) to protect opening if subjected to traffic prior to pavement repair.
- Match existing thicknesses of bedding/cover, base and surface materials.
- If suitable for reuse, reinstall the 'core' in the opening at the original alignment/orientation, using approved non-shrink grout placed into the opening and forced to the surface (filling annular space) upon placement/reinsertion of the 'core'.
- If the 'core' cannot be reused, then concrete repairs shall comply with all requirements for concrete pavement except as discussed herein. The joint of the new concrete patch shall be tied to existing concrete using #4 Epoxy Coated Rebar, 8" long, space 120° apart. Clean the vertical surface of existing concrete and prepare using a bonding agent. Concrete shall be ready mix or an approved high quality, air entrained bagged mixture. Finish, cure and protect as required for Concrete Pavement.
- Asphalt repairs shall comply with all requirements for Asphalt Pavement except as discussed herein. The joint of the new asphalt patch shall be adhered/tacked to the existing asphalt. Asphalt material shall be Hot Mix Asphalt or an approved mixture such as Akhrete Commercial Grade High Performance Blacktop Repair.

{End of Standards}

Rev. 1/14

PROJ. NO. 357402, PLAN NO. 4129

DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION
CITY OF MARSHFIELD, WISCONSIN

**CONCRETE /PAVEMENT
REPAIR & REPLACEMENT
(STREET REPAIR STANDARDS)
SHEET 1 OF 3**

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: G:\Street\standards.dwg 10/20/2015 10:53:01 AM vldkms					

MSA
PROFESSIONAL SERVICES

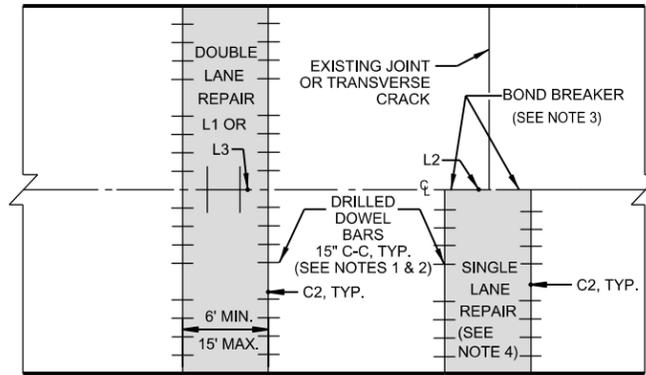
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL

146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

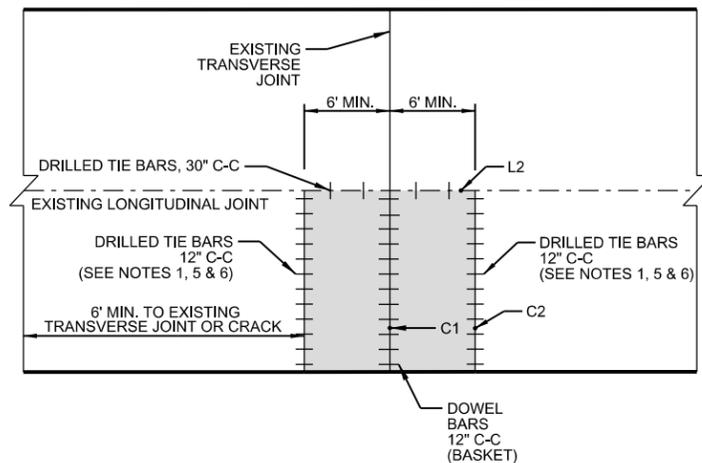
STREET REPAIRS STANDARDS

CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
MARSHFIELD, WI

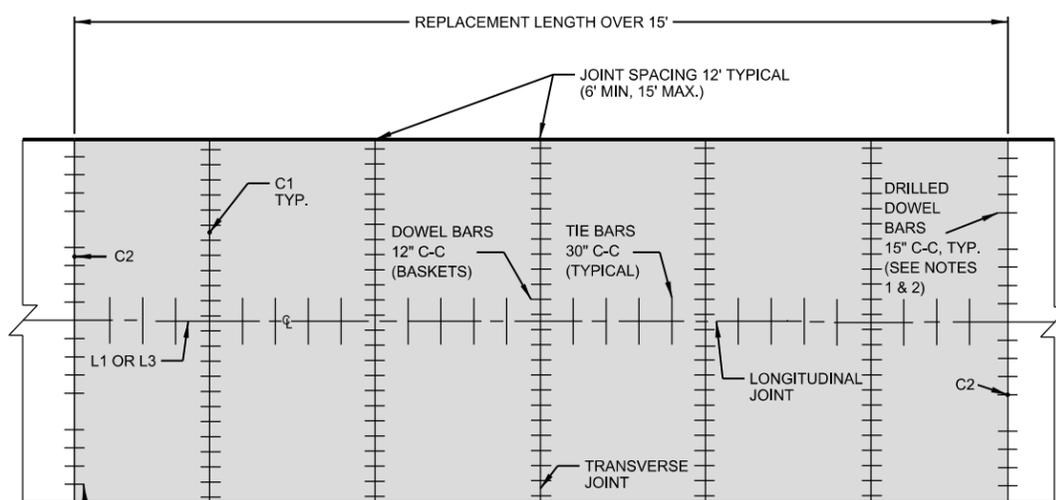
FILE NO.
00584065
SHEET
G 5



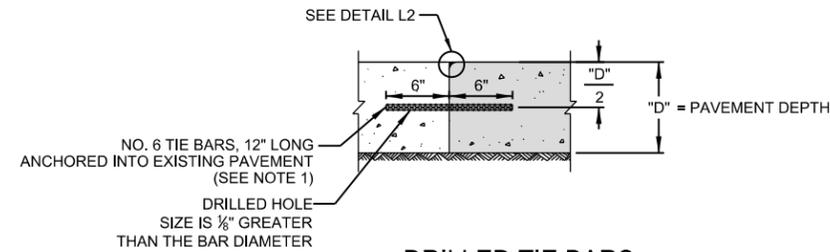
CONCRETE PAVEMENT JOINT REPAIR/REPLACEMENT



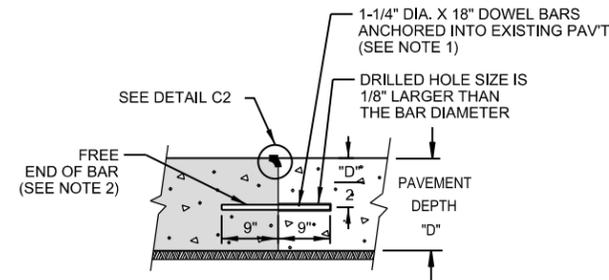
SINGLE LANE CONCRETE PAVEMENT REPAIR



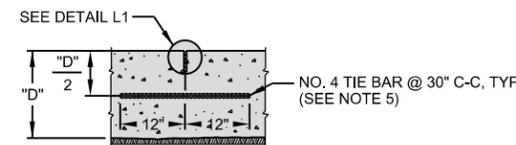
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT



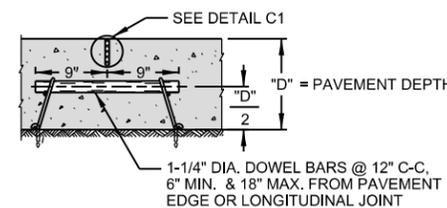
DRILLED TIE BARS
(DRILLED INTO EXISTING CONCRETE PAVEMENT)



DRILLED DOWEL BARS
(DRILLED INTO EXISTING CONCRETE PAVEMENT)



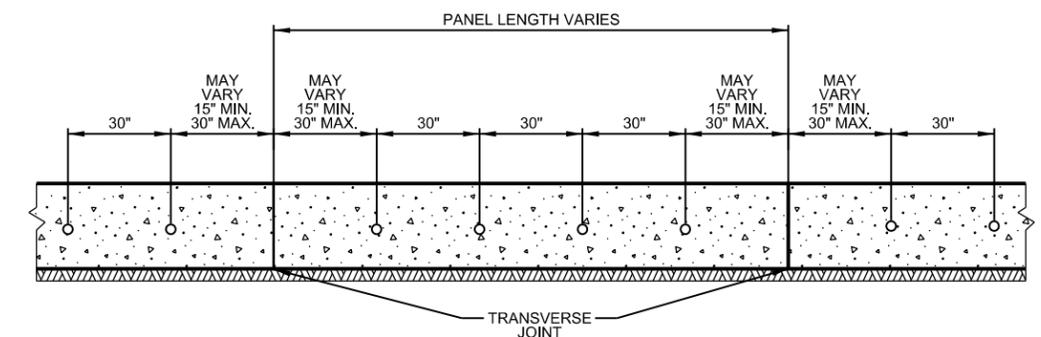
LONGITUDINAL/TIED JOINT
(WITHIN NEW PAVEMENT/PATCH)



TRANSVERSE/DOWELED JOINT
(WITHIN NEW PAVEMENT/PATCH)

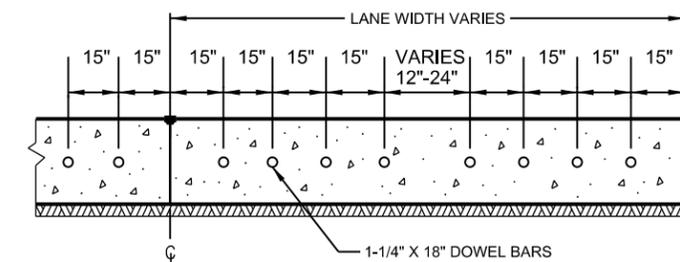
GENERAL NOTES

- DO NOT OVERSAW BEYOND THE REPAIR AREA UNLESS THE SAW BLADE IS WITHIN AN EXISTING JOINT.
- DOWEL BARS SHALL BE INSTALLED PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.
- CONCRETE PAVEMENT REPAIRS OF EXISTING NON DOWELED CONCRETE PAVEMENTS SHALL BE DOWELED.
- ALL NEW AND EXISTING JOINTS SHALL BE FILLED/SEALED.
- 1. ANCHOR DOWEL AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- 2. APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- 3. USE AN ENGINEER-APPROVED BOND BREAKER (0.5MM FREE STANDING PLASTIC SHEETING, RELEASE AGENT, CURING COMPOUND, 30LB TAR PAPER, ETC.) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- 4. SINGLE LANE JOINT REPAIR PATCH WITH OFFSET TRANSVERSE JOINT NOT ALLOWED FOR REPAIR OF UTILITY CUTS.
- 5. PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.
- 6. RESTRICT THE POTENTIAL FOR JOINT MOVEMENT WHEN INTRODUCING NEW TRANSVERSE JOINTS THAT DO NOT EXTEND ACROSS THE ENTIRE WIDTH OF PAVEMENT.
- 7. DRILLED TIE BARS ARE REQUIRED WHERE LONGITUDINAL EDGES OF THE REPAIR/REPLACEMENT ARE ABUT CONCRETE CURB & GUTTER OR PAVEMENT.



TIE BAR SPACING

(DRILLED INTO EXISTING PAVEMENT OR PLACED WITHIN NEW PAVEMENT/PATCH)



DRILLED DOWEL BAR SPACING

(DRILLED INTO EXISTING PAVEMENT)

PROJ. NO. 357402, PLAN NO. 4129

DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION
CITY OF MARSHFIELD, WISCONSIN

**CONCRETE PAVEMENT
REPAIR & REPLACEMENT
(STREET REPAIR STANDARDS)**
SHEET 2 OF 3

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: C:\9 Streets\standards\Ps 2.dwg 10/20/2015 10:53:02 AM vldkms					

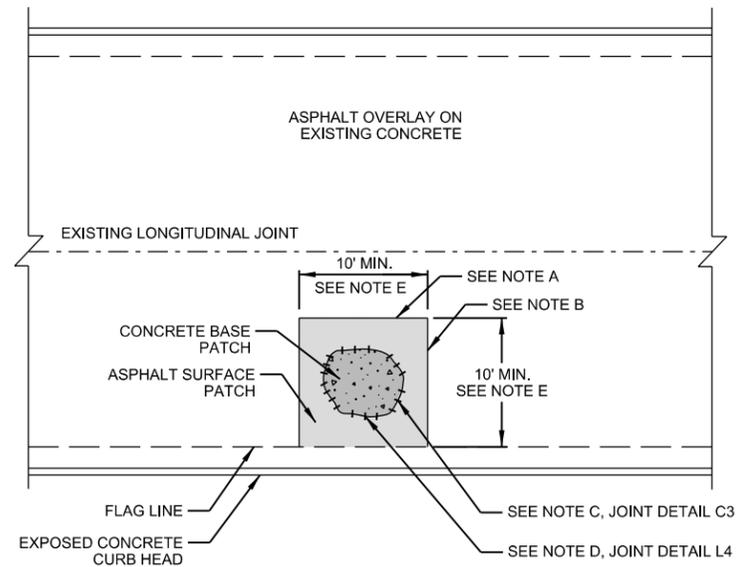
MSA
PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
148 North Central Ave. Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

STREET REPAIRS STANDARDS

CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
MARSHFIELD, WI

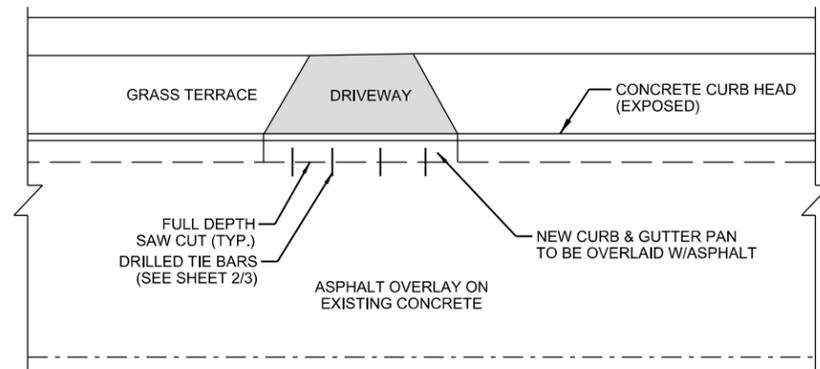
FILE NO.
00584065
SHEET
G 6



ASPHALT OVERLAY ON CONCRETE BASE (REPAIR)

NOTES:

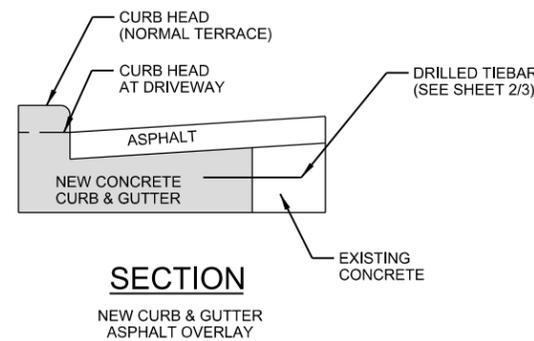
- A. LONGITUDINAL JOINTS SHALL BE AT THE $\frac{1}{4}$ OR PARALLEL WITH THE $\frac{1}{4}$ AT THE MIDDLE OR EDGE OF THE LANE/TRAVELED WAY. LONGITUDINAL JOINTS SHALL NOT BE AT A WHEEL PATH.
- B. TRANSVERSE JOINTS SHALL BE ALIGNED WITH OR AT LEAST 6' FROM AN EXISTING TRANSVERSE JOINT OR CRACK.
- C. TRANSVERSE JOINT REINFORCEMENT SHALL BE DRILLED TIE BARS (NO. 6x12" SPACED 12" C-C, SEE SHEET 2/3)
- D. LONGITUDINAL JOINT REINFORCEMENT SHALL BE DRILLED TIE BARS (NO. 6x12" SPACED 30" C-C, SEE SHEET 2/3)
- E. MINIMUM DIMENSIONS FOR ASPHALT REPAIRS AS SHOWN SHALL BE REQUIRED ON COLLECTOR AND ARTERIAL STREETS; AND RESIDENTIAL STREETS WITH ASPHALT SURFACE AGE OF 5 YEARS OR LESS.



CURB & GUTTER ON ASPHALT OVERLAID CONCRETE PAVEMENT

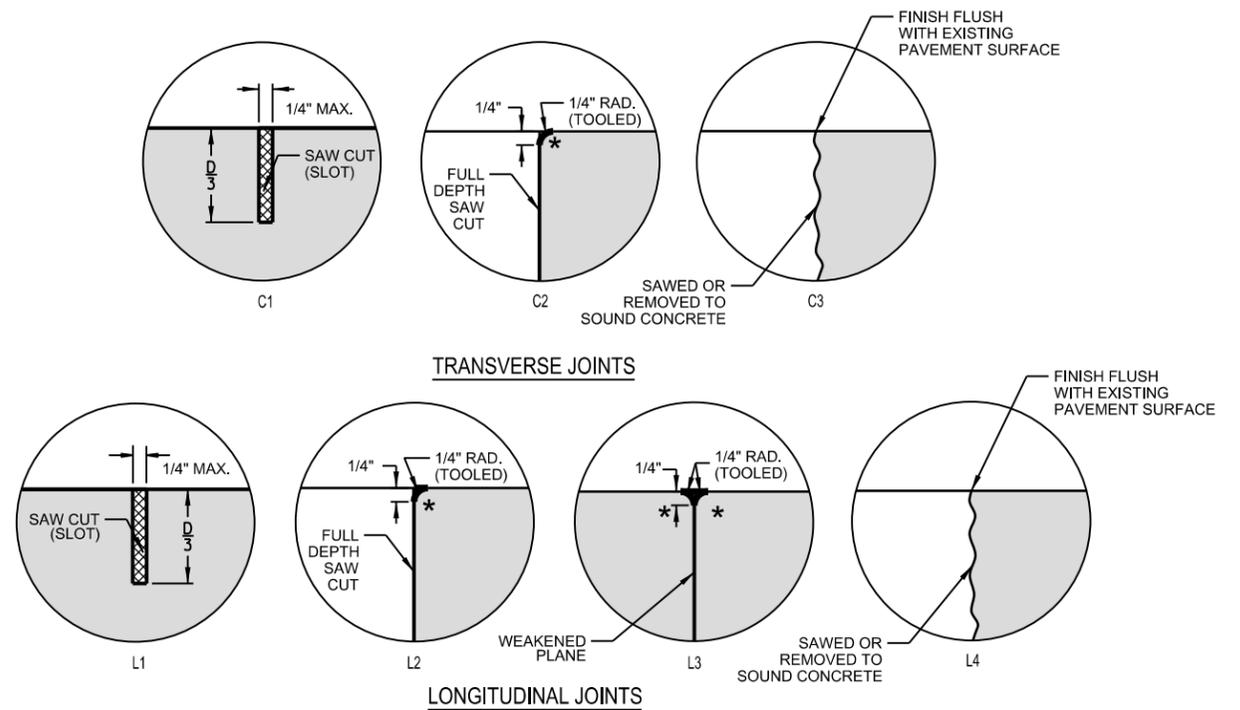
NOTES:

- CURB OPENINGS FOR NEW DRIVEWAYS MAY BE CONSTRUCTED BY SAWING OFF THE CURB HEAD (IF PROFESSIONALLY DONE BY TRAINED PERSONNEL USING PROPER EQUIPMENT) IN LEU OF REMOVAL AND REPLACEMENT.
- NEW CONCRETE CURB & GUTTER PAN SHALL NOT BE EXPOSED UNLESS APPROVED BY THE CITY ENGINEER.

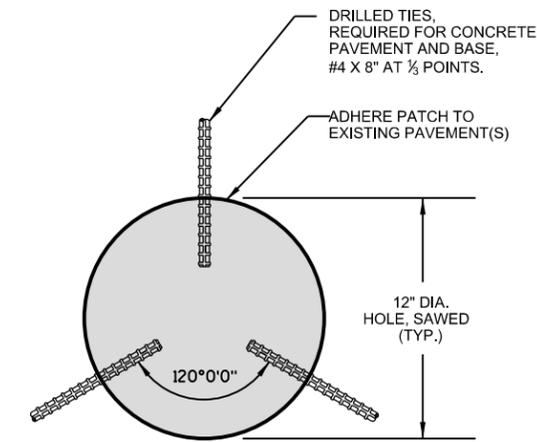


SECTION
NEW CURB & GUTTER
ASPHALT OVERLAY

- ☒ HOT-POUR ELASTIC SEALANT REQUIRED
- * TROWEL/EDGE NEW CONCRETE TO CREATE A RESERVOIR FOR JOINT SEALANT



CONCRETE PAVEMENT JOINT DETAILS



S.U.E./POTHOLE REPAIR
(CONCRETE PAVEMENT/BASE)

PROJ. NO. 357402, PLAN NO. 4129

DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION
CITY OF MARSHFIELD, WISCONSIN

**CONCRETE PAVEMENT JOINT DETAILS &
ASPHALT OVERLAY/ POTHOLE REPAIRS
(STREET REPAIR STANDARDS)**
SHEET 3 OF 3

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: G:\10 Streetrepairstandards\By 3.dwg 10/20/2015 10:53:03 AM addison					

MSA
PROFESSIONAL SERVICES

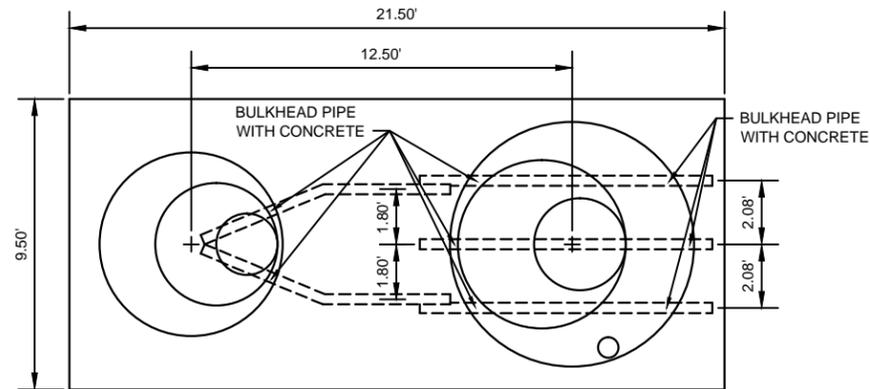
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL

146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

STREET REPAIRS STANDARDS

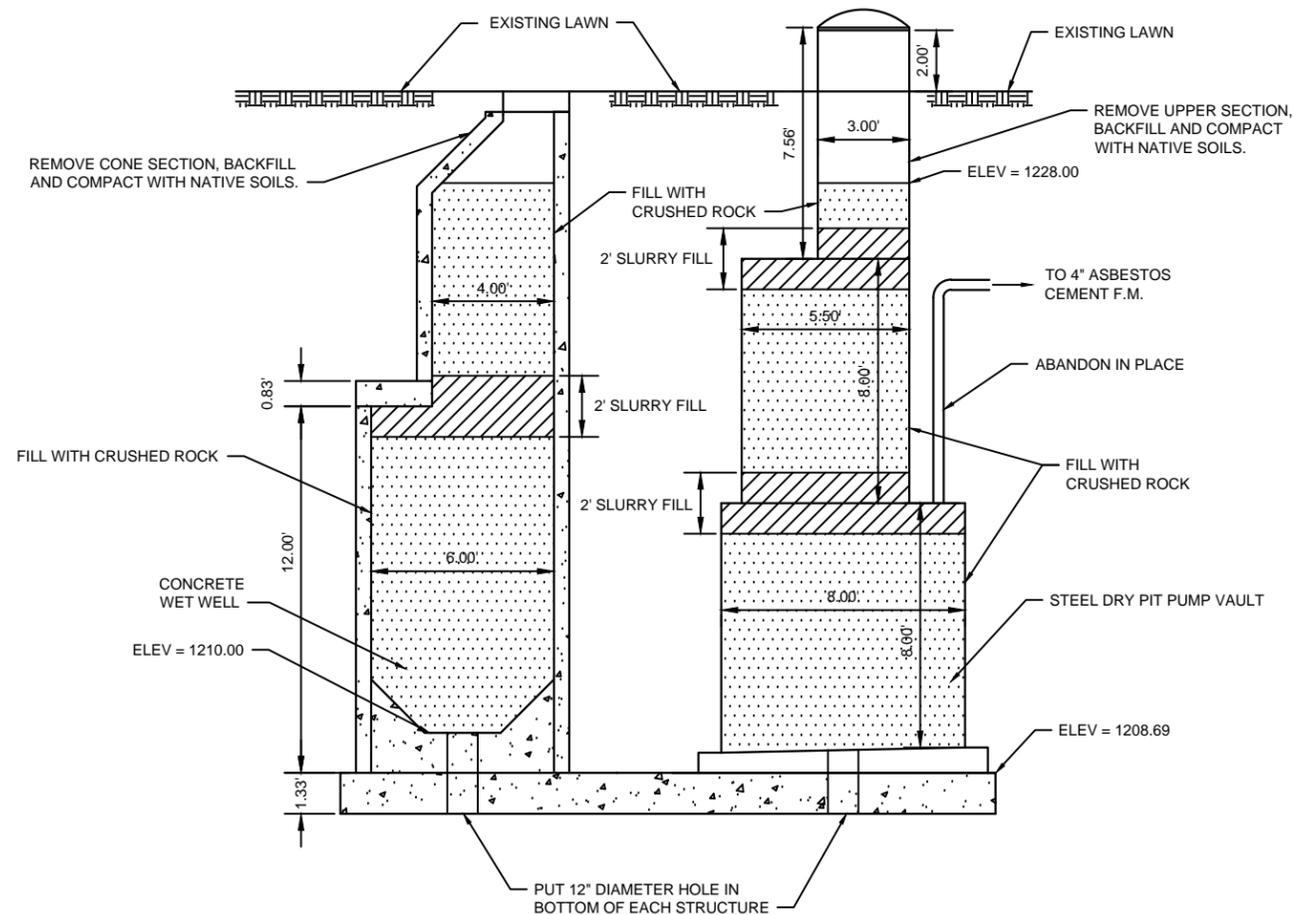
CITY OF MARSHFIELD CONTRACT 2015 - 05
CITY OF MARSHFIELD
MARSHFIELD, WI

FILE NO.
00584065
SHEET
G 7



ABANDONMENT:

1. THE EXISTING GENERATOR, TRANSFER SWITCH, PUMPS & MOTORS, AIR-BUBBLER LEVEL CONTROL SYSTEM AND RADIO / SCADA EQUIPMENT (FOR REUSE ON THIS PROJECT) WILL BE REMOVED AND SALVAGED BY THE CONTRACTOR AND DELIVERED TO THE CITY AT A LOCATION DIRECTED BY THE CITY. ALL REMAINING EQUIPMENT AND PIPING IN THE EXISTING LIFT STATION WET WELL AND DRY PUMP PIT WILL BE REMOVED AND DISPOSED BY THE CONTRACTOR.
2. THE CONCRETE GENERATOR VAULT WILL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR. THE RESULTING HOLE WILL BE FILLED AND COMPACTED WITH NATIVE SOILS.
3. THE EXISTING LIFT STATION CONCRETE WET WELL AND STEEL DRY PIT PUMP VAULT STRUCTURES WILL BE ABANDONED IN PLACE. ONCE ALL INTERNAL PIPING AND EQUIPMENT HAS BEEN REMOVED FROM THE TWO STRUCTURES, A HOLE WILL BE PUT THROUGH THE FLOOR OF EACH STRUCTURE TO FACILITATE WATER MOVEMENT. THE CONCRETE CONE SECTION WILL BE REMOVED FROM THE TOP OF THE CONCRETE WET WELL. THE UPPER THREE FEET OF THE STEEL DRY PUMP PIT VAULT WILL BE CUT OFF AND REMOVED. THE TWO STRUCTURES WILL BE FILLED AS FOLLOWS:
 - A. EACH STRUCTURE WILL BE FILLED WITH CRUSHED ROCK EXCEPT AT EACH TRANSITION ZONE WHERE THE DIAMETER OF THE STRUCTURE CHANGES. AT EACH TRANSITION ZONE, A TWO FOOT LAYER OF SLURRY FILL WILL BE POURED TO ASSURE THE STRUCTURE IS COMPLETELY FILLED.
 - B. SLURRY FILL, WHERE SHOWN, EXISTING STRUCTURES SHALL BE ABANDONED IN PLACE WITH A SLURRY FILL. SLURRY FILL ABANDONMENT SHALL CONSIST OF A CONTRACTOR-DESIGNED CEMENTITIOUS MIXTURE OF FINE AGGREGATE, FLY ASH, PORTLAND CEMENT, WATER, AND OPTIONAL ADMIXTURES. ENSURE THE RESULTING MIXTURE HARDENS WITHIN 24 HOURS AND REACHES 28-DAY STRENGTH OF 40-80 PSI AND MEETS ASTM D4832 STANDARDS.
4. THE EXISTING ASPHALT DRIVEWAY WILL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THE GRAVEL BENEATH THE ASPHALT, IF ANY, WILL BE REMOVED AND USED AS FILL ELSEWHERE ON THE PROJECT.
5. ALL AREAS DISTURBED BY CONSTRUCTION, INCLUDING ABANDONMENT ACTIVITIES WILL BE RESTORED WITH 6-INCHES TOPSOIL, SEED, FERTILIZED AND MULCH. THIS TURF RESTORATION SHALL BE LAWN QUALITY WHEN COMPLETED.



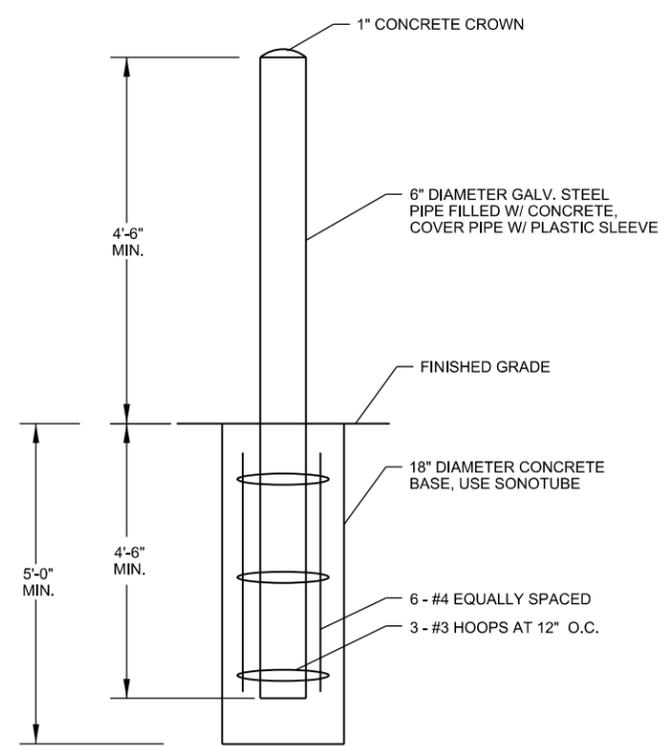
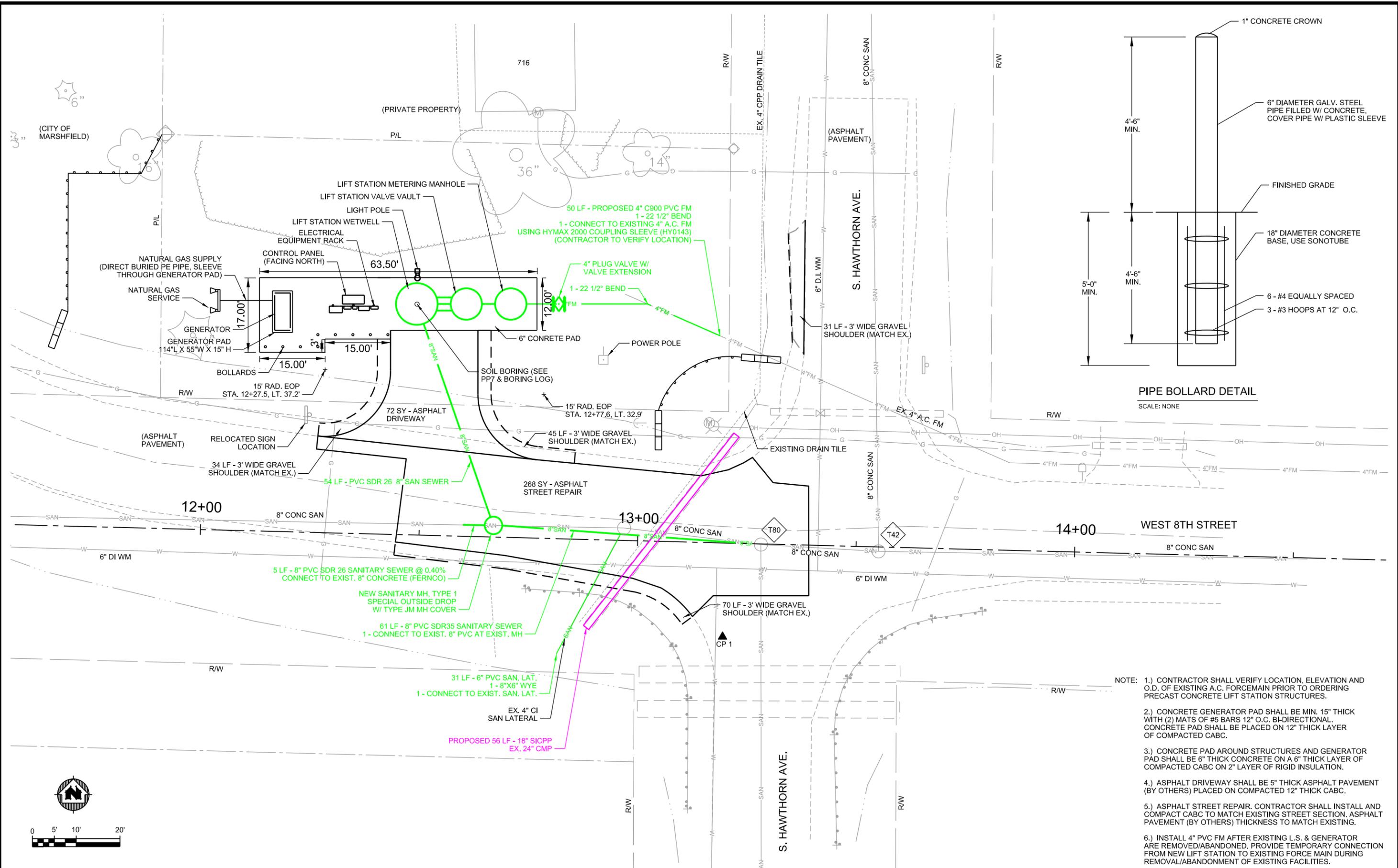
PROJECT NO.:	584084	SCALE:	AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE:	MAY 2015	DRAWN BY:	DWR				
F.B.:		CHECKED BY:	TRT				
PLOT DATE:	10/20/15	P:\5808\584\00584083\CADD\Construction Documents\Promoted Drawings\Sanitary Reconstruction\GENERAL SHEETS.dwg					

MSA
 TRANSPORTATION • MUNICIPAL
 DEVELOPMENT • ENVIRONMENTAL
 146 North Central Ave. Marshfield, WI 54449
 715-384-2133 1-877-204-0572 Fax: 715-384-9787
 Web Address: www.msa-ps.com
 © MSA Professional Services, Inc.

LIFT STATION ABANDONMENT

8TH STREET LIFT STATION REPLACEMENT
 CITY OF MARSHFIELD - PLAN NO 4129
 WOOD COUNTY, WISCONSIN

FILE NO.
 584084
 SHEET
 G 8



PIPE BOLLARD DETAIL
SCALE: NONE

- NOTE:
- 1.) CONTRACTOR SHALL VERIFY LOCATION, ELEVATION AND O.D. OF EXISTING A.C. FORCEMAIN PRIOR TO ORDERING PRECAST CONCRETE LIFT STATION STRUCTURES.
 - 2.) CONCRETE GENERATOR PAD SHALL BE MIN. 15" THICK WITH (2) MATS OF #5 BARS 12" O.C. BI-DIRECTIONAL. CONCRETE PAD SHALL BE PLACED ON 12" THICK LAYER OF COMPACTED CABC.
 - 3.) CONCRETE PAD AROUND STRUCTURES AND GENERATOR PAD SHALL BE 6" THICK CONCRETE ON A 6" THICK LAYER OF COMPACTED CABC ON 2" LAYER OF RIGID INSULATION.
 - 4.) ASPHALT DRIVEWAY SHALL BE 5" THICK ASPHALT PAVEMENT (BY OTHERS) PLACED ON COMPACTED 12" THICK CABC.
 - 5.) ASPHALT STREET REPAIR. CONTRACTOR SHALL INSTALL AND COMPACT CABC TO MATCH EXISTING STREET SECTION. ASPHALT PAVEMENT (BY OTHERS) THICKNESS TO MATCH EXISTING.
 - 6.) INSTALL 4" PVC FM AFTER EXISTING L.S. & GENERATOR ARE REMOVED/ABANDONED. PROVIDE TEMPORARY CONNECTION FROM NEW LIFT STATION TO EXISTING FORCE MAIN DURING REMOVAL/ABANDONMENT OF EXISTING FACILITIES.

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: P:\Proposed Site Plan.dwg 10/21/2015 10:36:37 AM adobes					

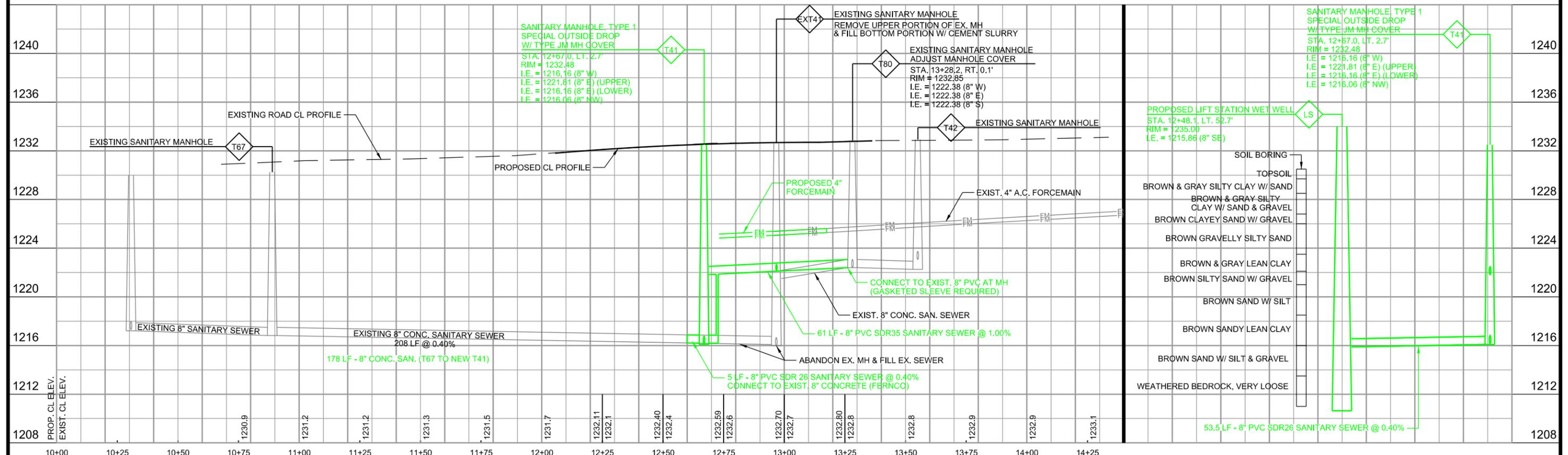
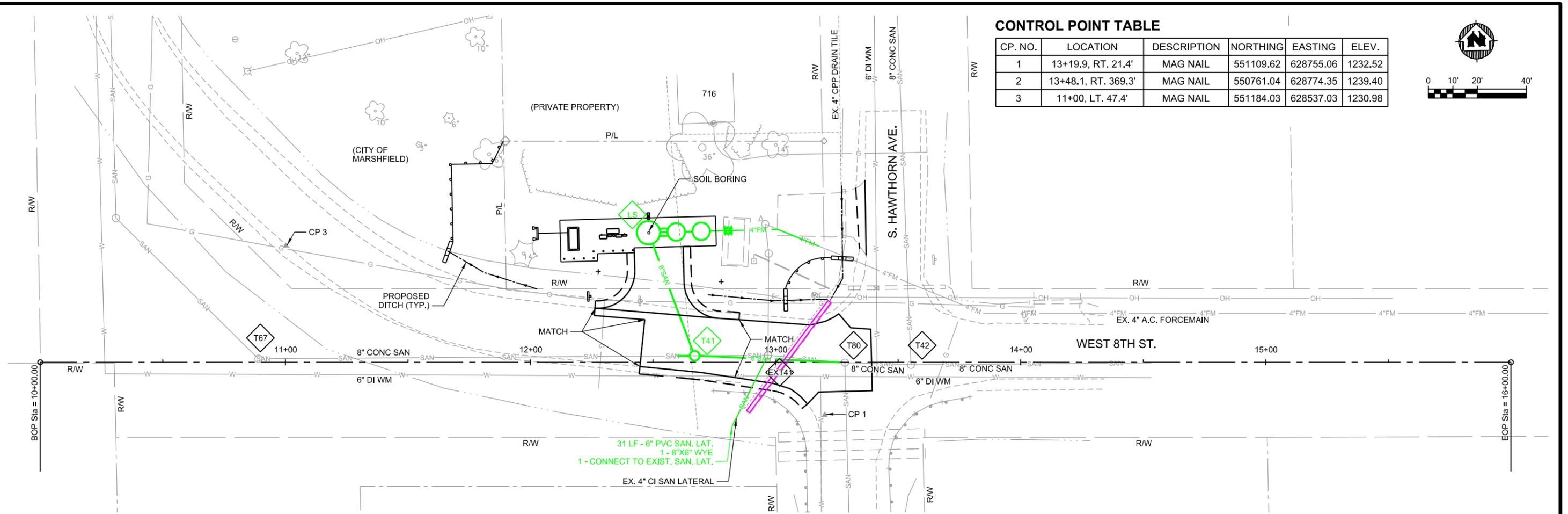
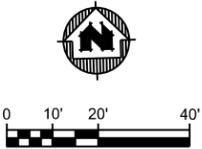
MSA
PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

PROPOSED SITE PLAN

CONTROL POINT TABLE

CP. NO.	LOCATION	DESCRIPTION	NORTHING	EASTING	ELEV.
1	13+19.9, RT. 21.4'	MAG NAIL	551109.62	628755.06	1232.52
2	13+48.1, RT. 369.3'	MAG NAIL	550761.04	628774.35	1239.40
3	11+00, LT. 47.4'	MAG NAIL	551184.03	628537.03	1230.98



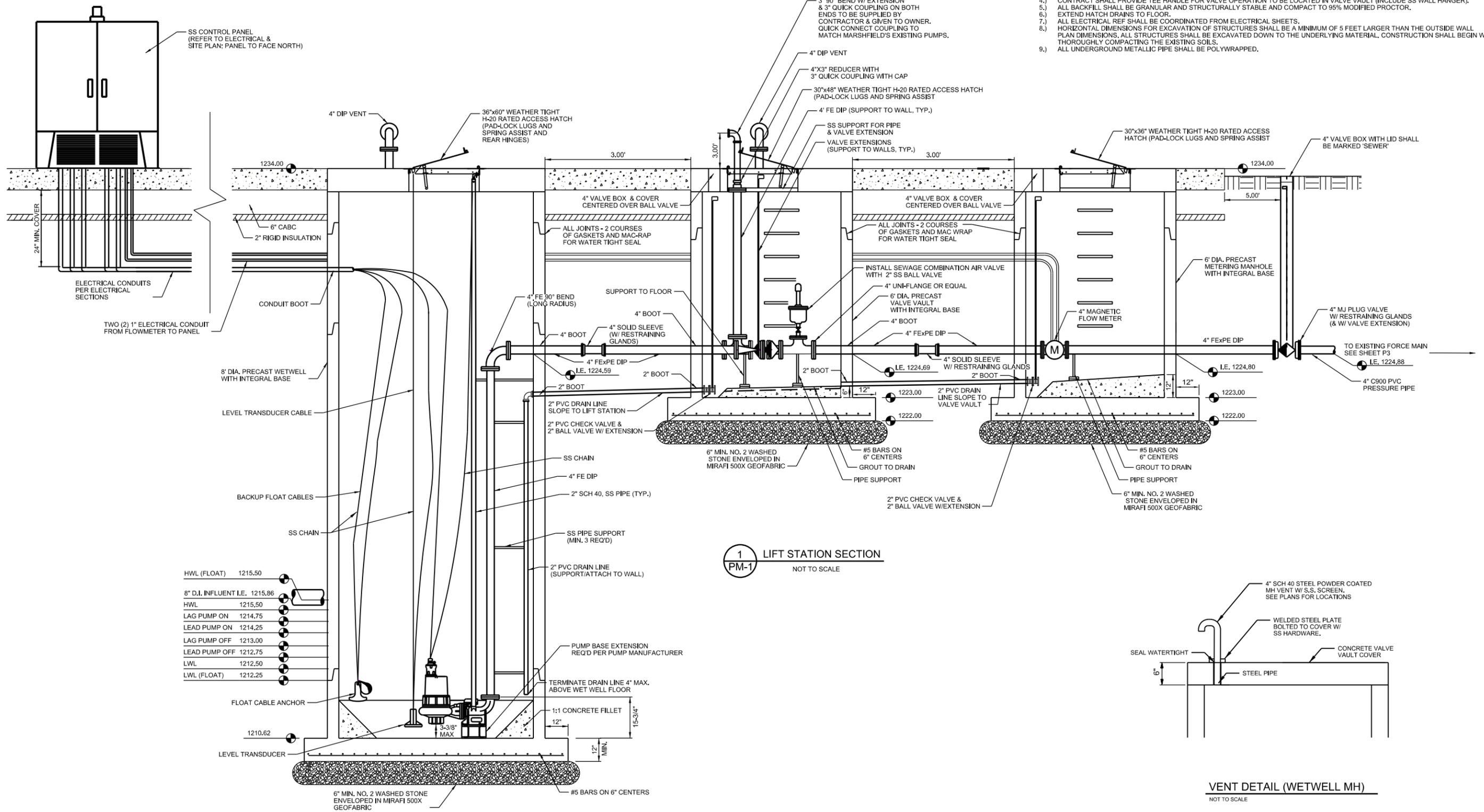
PROJECT NO.	SCALE	NO.	DATE	REVISION	BY
00584065	AS SHOWN				
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: 8/20/2015 3:52:15 PM					

MSA
 TRANSPORTATION • MUNICIPAL
 DEVELOPMENT • ENVIRONMENTAL
 146 North Central Ave., Marshfield, WI 54449
 715-384-2133 1-877-204-0572 Fax: 715-384-9787
 Web Address: www.msa-ps.com
 © MSA Professional Services, Inc.

WEST 8TH STREET PLAN AND PROFILE

8TH STREET LIFT STATION REPLACEMENT
 CITY OF MARSHFIELD - PLAN NO 4129
 MARSHFIELD, WI

FILE NO. 00584065
 SHEET PP 1



- GENERAL NOTES:
- 1.) ALL INTERIOR VALVE VAULT AND WETWELL PIPING SHALL BE EPOXY COATED. THE COLOR SHALL BE LIGHT GRAY.
 - 2.) ALL BURIED PIPING SHALL HAVE RESTRAINED JOINTS. MIN. LENGTH OF PIPE IS 10 LF.
 - 3.) ALL FITTINGS SHALL BE RESTRAINED MECHANICALLY BY MEGA-LUG OR EQUAL.
 - 4.) CONTRACTOR SHALL PROVIDE TEE HANDLE FOR VALVE OPERATION TO BE LOCATED IN VALVE VAULT (INCLUDE SS WALL HANGER).
 - 5.) ALL BACKFILL SHALL BE GRANULAR AND STRUCTURALLY STABLE AND COMPACT TO 95% MODIFIED PROCTOR.
 - 6.) EXTEND HATCH DRAINS TO FLOOR.
 - 7.) ALL ELECTRICAL REF SHALL BE COORDINATED FROM ELECTRICAL SHEETS.
 - 8.) HORIZONTAL DIMENSIONS FOR EXCAVATION OF STRUCTURES SHALL BE A MINIMUM OF 5 FEET LARGER THAN THE OUTSIDE WALL PLAN DIMENSIONS. ALL STRUCTURES SHALL BE EXCAVATED DOWN TO THE UNDERLYING MATERIAL. CONSTRUCTION SHALL BEGIN WITH THOROUGHLY COMPACTING THE EXISTING SOILS.
 - 9.) ALL UNDERGROUND METALLIC PIPE SHALL BE POLYWRAPPED.

1
PM-1
LIFT STATION SECTION
NOT TO SCALE

VENT DETAIL (WETWELL MH)
NOT TO SCALE

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: PM1 Lift Station Profile.dwg 10/21/2015 10:36:28 AM addam					

MSA
PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL

148 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com

© MSA Professional Services, Inc.

LIFT STATION PROFILE

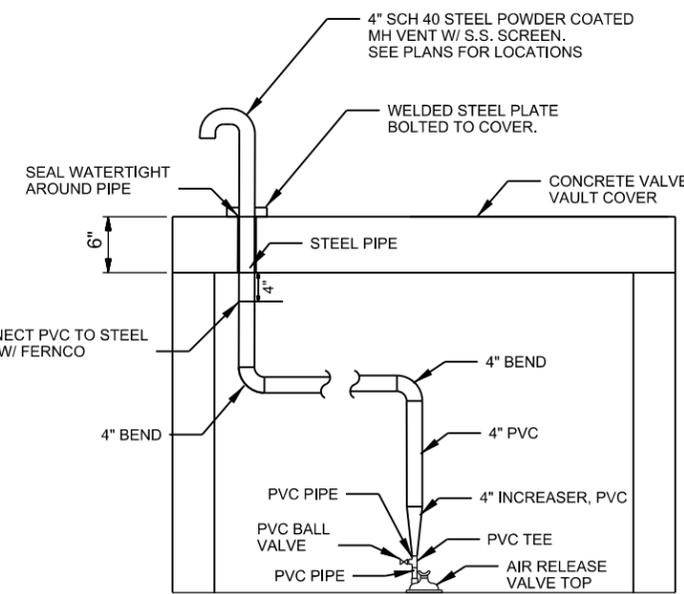
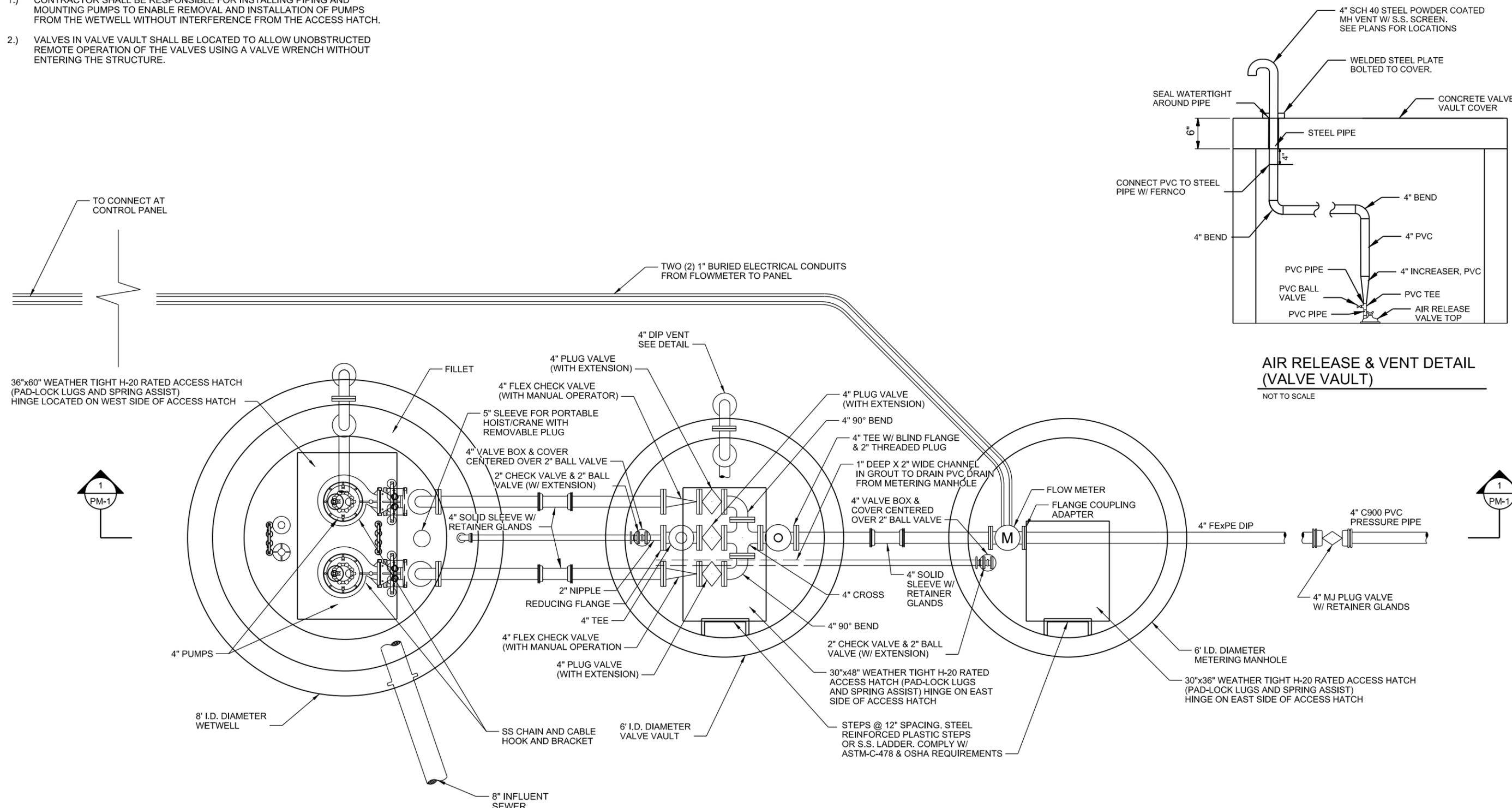
8TH STREET LIFT STATION REPLACEMENT
CITY OF MARSHFIELD - PLAN NO 4129
MARSHFIELD, WI

FILE NO.
00584065

SHEET
PM 1

GENERAL NOTES:

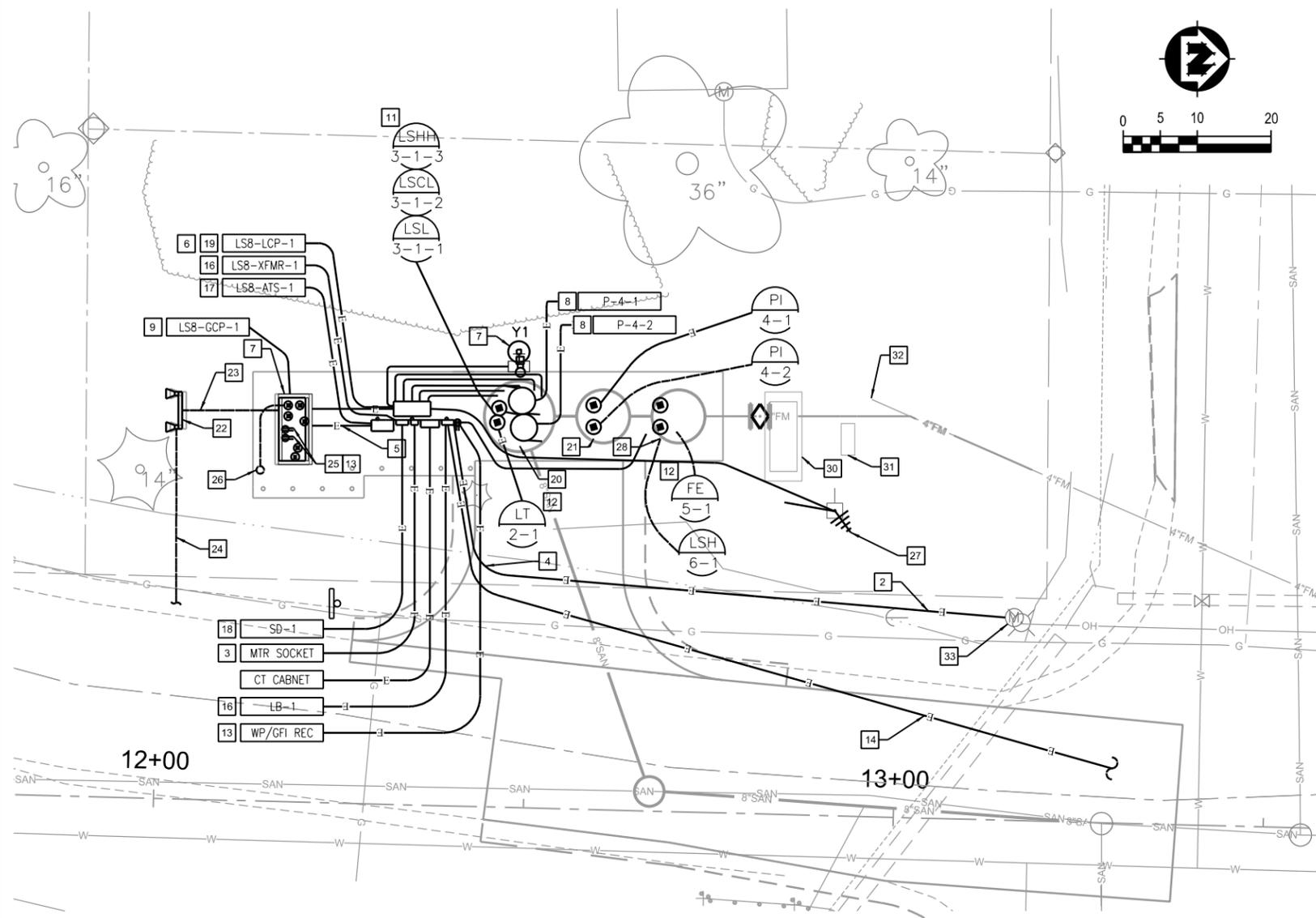
- 1.) CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING PIPING AND MOUNTING PUMPS TO ENABLE REMOVAL AND INSTALLATION OF PUMPS FROM THE WETWELL WITHOUT INTERFERENCE FROM THE ACCESS HATCH.
- 2.) VALVES IN VALVE VAULT SHALL BE LOCATED TO ALLOW UNOBSTRUCTED REMOTE OPERATION OF THE VALVES USING A VALVE WRENCH WITHOUT ENTERING THE STRUCTURE.



AIR RELEASE & VENT DETAIL (VALVE VAULT)
NOT TO SCALE

LIFT STATION - PLAN
0' 0.75' 1.5' 3'

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY	<p>TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL 146 North Central Ave., Marshfield, WI 54449 715-384-2133 1-877-204-0572 Fax: 715-384-9787 Web Address: www.msa-ps.com © MSA Professional Services, Inc.</p>	<p>LIFT STATION PLAN</p>	<p>8TH STREET LIFT STATION REPLACEMENT CITY OF MARSHFIELD - PLAN NO 4129 MARSHFIELD, WI</p>	FILE NO. 00584065
PROJECT DATE: 4/09/15	DRAWN BY: ARB				SHEET PM 2				
CHECKED BY: MAV									
PLOT DATE: PM2 Lift Station Plan & Details.dwg 10/20/2015 3:41:03 PM addms									



ELECTRICAL GENERAL SITE PLAN NOTES:

- ALL CONDUITS LOCATED IN CLASSIFIED HAZARDOUS OR CORROSIVE AREAS SHALL BE PVC COATED RIGID CONDUIT, PVC COATED CAST BOXES, AND SS SUPPORTS & HARDWARE.
- BURIED POWER CONDUITS TO BE SCH 80 NON-METALLIC PVC. UNLESS OTHERWISE NOTED OR REQUIRED BY SCHEDULE. SHALL BE SAND BEDDED. (TYP.)
- BURIED AND EXPOSED CONTROL AND DATA CONDUIT(S) TO BE PVC COATED RIGID. UNLESS OTHERWISE NOTED OR REQUIRED BY SCHEDULE. SHALL BE SAND BEDDED. (TYP.)
- EXPOSED, ALL CIRCUITS, CONDUIT(S) TO BE PGRS. UNLESS OTHERWISE NOTED OR REQUIRED BY SCHEDULE. (TYP.)
- BURIED CABLE SLEEVED SHALL BE SCH 80 NON-METALLIC PVC.
- ALL TRENCHING MINIMUM 30" DEPTH TO TOP OF CONDUIT. CONTRACTOR SHALL INSTALL IDENTIFICATION RIBBONS 6" ABOVE ALL CONDUITS TRENCHES (MULTIPLE RIBBONS MAYBE REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES PRIOR AND FOR ALL BACK FILL AND RESTORATION AFTERWARDS.
- REFER TO ELECTRICAL PLANS AND SPECIFICATION FOR ADDITIONAL INFORMATION AND DETAILS.
- ALL ITEMS AND DEVICES SHOWN ARE FOR GENERAL INTENT AND CLARITY. ACTUAL LAYOUT AND INSTALLATION MAY VARY, BASED ON FIELD CONDITIONS. ALL CHANGES SHALL BE COORDINATED WITH OWNER AND FIELD ENGINEER.
- ELECTRICAL INSTALLATION SHALL BE PERFORMED IN A WORKMANSHIP MANNER AND COMPLY WITH ALL RELEVANT CODES, REGULATIONS, AND GUIDANCE.
- CONTRACTOR SHALL FIELD VERIFY FEEDER SIZING FOR VOLTAGE DROP PER ACTUAL WIRE RUNS.
- CONTRACTOR SHALL FIELD VERIFY THAT ALL LOADS AND BRANCH LOADS ARE BALANCED.

PROJECT GENERAL ELECTRICAL NOTES:

- THIS DRAWING IS A STANDARD LEGEND. SYMBOLS SHOWN MAY NOT ALL APPEAR ON DRAWINGS FOR THIS PROJECT.
- ALL CONTACTS ARE SHOWN IN THE DE-ENERGIZED (SHELF) POSITION. BI-STABLE RELAYS ARE SHOWN IN THE RESET POSITION.
- ONE-LINE DIAGRAMS FOR POWER SWITCHGEAR, USE ANSI STANDARD SYMBOLS AND ABBREVIATIONS.
- SEE INSTRUMENTATION DRAWINGS FOR INSTRUMENTATION SYMBOLS AND DETAILS.
- OTHER ABBREVIATIONS PER ANSI Z32.13 AND ISA S5.1
- ELEVATIONS ADJACENT TO SYMBOLS ARE BASED ON STATION DATUM. HEIGHTS ADJACENT TO SYMBOLS (+4.0) ARE REFERENCED TO FINISHED FLOOR GRADE.
- THE LETTERS "GFI" ADJACENT TO A RECEPTACLE INDICATES A GROUND FAULT INTERRUPTER FEED-THROUGH RECEPTACLE ASSEMBLY. THE LETTERS ADJACENT TO A PANEL BOARD CIRCUIT BREAKER INDICATES A GROUND FAULT CIRCUIT BREAKER. THE LETTERS "IG" INDICATE AN ISOLATED GROUND RECEPTACLE, PROVIDE SEPARATE GROUND WIRE.
- SEE SPECIFICATIONS AND SCHEDULES FOR COMPONENT REQUIREMENTS FOR MOTOR CONTROLLERS AND FOR CONTACTORS.
- DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
- EFFORT WAS MADE IN THE PREPARATION OF THE CONTRACT DOCUMENTATION TO COORDINATE CONNECTIONS WITH ALL DISCIPLINES, HOWEVER THE EC IS RESPONSIBLE TO REVIEW ENTIRE PLANS AND THE SPECIFICATIONS AND INCLUDE ALL WORK REQUIRED TO PROVIDE A COMPLETE PROJECT.
- SIZE HOMERUN WIRING PER ONE-LINE DIAGRAM AND NEC GUIDELINES.
- REFER TO INSTRUMENTATION DEVICE SCHEDULE ON SCHEDULE SHEET FOR CONNECTION REQUIREMENTS OF INSTRUMENTATION AND CONTROL DEVICES, EQUIPMENT, ETC.
- OBSERVE APPLICABLE CODE REQUIREMENTS FOR ELECTRICAL INSTALLATIONS WITHIN HAZARDOUS AREAS NOTED ON PLAN.
- MINIMUM CONDUIT SIZE 3/4", UNLESS OTHERWISE NOTED.
- ALL BRANCH CIRCUIT HOMERUNS TO BE (2)#12 & #12G IN 3/4" MINIMUM UNLESS OTHERWISE NOTED OR REQUIRED. MOTOR WIRING AS INDICATED ON ONE-LINE DIAGRAM.
- ALL DEVICE/SIGNAL CIRCUIT HOMERUNS TO BE (2)#14 & IN 3/4" MINIMUM.
- PROVIDE ALL MOTOR AND SIGNAL CIRCUIT HOMERUNS RELATED TO PROCESS EQUIPMENT.
- COORDINATE EXACT LOCATION OF ALL EQUIPMENT AND FIXTURES WITH GC, OWNER, AND ENGINEER PRIOR TO ROUGH-IN.
- EC SHALL MODIFY WIRE AND CIRCUIT SIZES BASED ON ACTUAL EQUIPMENT SUPPLIED.
- CONTRACTOR SHALL REVIEW TYPICAL DETAILS AND ALL CONSTRUCTION SHALL COMPLY WITH ALL TYPICAL DRAWINGS AND DETAILS.
- FUTURE EQUIPMENT AND DEVICES SHALL BE ROUGH IN CONDUIT FOR CONTROL AND POWER CABLES TO BOXES. ROUGH-IN CONDUIT AND MAKE PROVISION FOR FUTURE WIRING AND CABLING FOR POWER AND CONTROL. (TYP.)
- DISCONNECTS RELATED TO PROCESS CONNECTIONS SHALL BE PROVIDED AND INSTALLED BY THE EC.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND LABELING ALL COMMUNICATIONS SYSTEM CABLING.
- THE CONTRACTOR SHALL REVIEW AND FOLLOW GUIDELINES OF THE TYPICAL DETAILS.
- CONSTRUCTION AND DEMOLITION SHALL BE COMPLETE AND COORDINATE WITH ALL OTHER TRADES.
- EC SHALL REVIEW CONTRACT DOCUMENT AND PROVIDE ALL WORK, MATERIALS, AND EQUIPMENT FOR A COMPLETE AND OPERABLE PROJECT.
- EXTERIOR RECEPTACLES SHALL BE METALLIC INSERVICE WEATHER PROOF COVERS, GFI REC, AND MOUNTED 24" to 48" AFG.
- ALL RACEWAYS PENETRATE SHALL BE SLEEVED AND SEALED.
- ALL EXTERIOR RACEWAYS THAT EXTEND FROM BELOW GRADE TO ABOVE GRADE SHALL BE INSTALLED WITH EXPANSION COLLAR SLEEVES.
- COORDINATE ACTUAL LOCATIONS OF ALL EQUIPMENT WITH GC, OWNER, AUTHORITY WITH JURISDICTION, OTHER TRADES, AND ENGINEER PRIOR TO ROUGH-IN. ACTUAL LAYOUT MAY VARY. ALL CHANGES SHALL BE JUSTIFIED AND COORDINATED.
- OBSERVE ENVIRONMENT AND AREA CLASSIFICATIONS AS REQUIRED. FOLLOW ALL APPLICABLE CODES.
- SERVICE SHALL BE INSTALL COMPLETE AND IN COMPLIANCE TO THE UTILITY APPROVED REQUIREMENTS. ONLY DIRECTLY FROM THE UTILITY MAYBE APPLIED TO THE UTILITY ALLOWANCE. ALL OTHER WORK, LABOR, MATERIALS SHALL BE INCLUSIVE TO THE CONTRACT.

LIFT STATION ELECTRICAL REQUIREMENTS: [X]

- UTILITY TRANSFORMER: POLE MOUNTED TO BE REUSED PER UTILITY BY THIS CONTRACT. UTILITY TRANSFORMERS SHALL PROVIDE THE SCHEDULED ELECTRIC SERVICE TO THE FACILITY.
- UTILITY SERVICE LATERAL: PROVIDE CONDUITS AND CONDUCTORS FOR UTILITY INSTALLATION OF SERVICE LATERAL CONDUCTORS AS SCHEDULED. (2) 4" CONDUITS OR AS REQUIRED BY UTILITY. PROVIDE POLE RISER PER UTILITY REQUIREMENTS.
- UTILITY APPROVED SELF-CONTAINED METER SOCKET: PROVIDE METER SOCKET SUITABLE FOR THE ELECTRIC SERVICE SCHEDULED AND PER UTILITY REQUIREMENTS FOR UTILITY INSTALLATION OF METER.
- SERVICE ENTRANCE CIRCUIT: PROVIDE SERVICE ENTRANCE CIRCUIT AS SCHEDULED.
- GENERATOR CIRCUIT: PROVIDE GENERATOR CIRCUIT AS SCHEDULED.
- LIFT STATION CONTROL PANEL COMPONENTS: PROVIDE LIFT STATION CONTROL PANEL INTERNAL COMPONENTS AS SCHEDULED.
- STAND-BY: NEW STAND BY ENGINE GENERATOR. MOUNT ON 18" THICK RC PAD. (2) MATS OF #5 12" O.C
- P-1 & P-2 MOTOR CONTROLLERS: PROVIDE MOTOR CONTROL COMPONENTS AS SCHEDULED. INSTALL PUMP CABLES AS DETAILED. PUMP CABLES SHALL BE PROVIDED BY PUMP MANUFACTURER AND SIZED FOR THE FULL LOAD OF THE PUMP MOTOR. PUMP CABLES MAY INCLUDE SENSOR (HIGH TEMPERATURE AND SEAL FAIL) WIRING OR SECOND CABLE MAY BE PROVIDED FOR THIS PURPOSE. INCLUDES TSHIME 4-1 AND TSHIME 4-2.
- GENERATOR CONTROL PANEL: PROVIDE AS SCHEDULED. WIRE TO ATS AND LS8-LCP-1
- CONTROL POWER SYSTEM: CONTROL PANEL SUPPLIER SHALL BE RESPONSIBLE FOR SIZING CONTROL POWER COMPONENTS BASED ON THE CONNECTED LOAD OF THE BRANCH CIRCUITS FED BY THE CONTROL POWER SYSTEM.
- FLOAT SWITCHES: PROVIDE AND INSTALL FIVE FLOAT SWITCHES AS DETAILED. FLOAT SWITCH CABLES SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLES SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED.
- SUBMERSIBLE LEVEL TRANSMITTER: PROVIDE AND INSTALL ONE SUBMERSIBLE LEVEL SENSOR AS DETAILED. LEVEL SENSOR CABLE SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLES SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED.
- EXTERIOR RECEPTACLE: PROVIDE AND INSTALL ONE EXTERIOR WEATERPROOF/GFCI RECEPTACLE AT THE EQUIPMENT MOUNTING RACK AS DETAILED. ROUTE 2#10 & #10G IN 3/4" TO 20A/1P CIRCUIT BREAKER IN CONTROL PANEL.
- NOT USED
- LIGHT POLE: PROVIDE AND INSTALL LIGHT POLE. FURNISH AND INSTALL (2)#12 & #12G IN 1" CONDUIT. THE LIGHT SHALL BE SWITCH IS SERIES WITH PHOTO CELL. COORDINATE WITH FIXTURE SUPPLIER AND SCHEDULE.
- LS-XFMR-1: PROVIDE XFMR AS SCHEDULED. SHALL HAVE IS COVER TO MATCH PANEL.
- ATS: PROVIDE AS SPECIFIED AND SCHEDULED.
- SD-SS-1: SERVICE DISCONNECT A SPECIFIED AND SCHEDULED.
- LS8-LSP-1: LIFT STATION CONTROL PANEL AS SPECIFIED AND SCHEDULED.
- WETWELL
- VALVE VAULT
- NG GAS SERVICE: COORDINATE SERVICE INSTALLATION WITH UTILITY. PROVIDE EQUIPMENT RACK TO SUPPORT METER AND SERVICE. SUPPLY TO GENERATOR SHALL HAVE SHUT-OFF VALVES AND EXP/FLEX TUBING.
- NG SUPPLY: DIRECT BURIED PE PIPE. SLEEVE THROUGH GENERATOR PAD.
- NG. SERVICE LATERAL BY WE ENERGIES: PER ALLOWANCE.
- INSTALL (2) REC. WITH IN GENERATOR ENCLOSURE TO POWER BLOCK HEATER AND BATTERY CHARGE. COORDINATE WITH MFR.
- LP SUPPLY: STUB OUT COPPER LP SUPPLY LINE WITH ISOLATOR HOSE AND SHUT-OFF VALVE. INSTALL CONNECTION IN GROUND BOX.
- SCADA ANTENNA: EXISTING POLE AND SCADA ANTENNA TO REMAIN. PROVIDE NEW 7/8" HELIAX IN 1 1/2" CONDUIT. NEW SHIELDED RISER COVER ON POLE.
- FLOW METER VAULT
- CONNECT SUBMERSIBLE RATED FLOW METER (TYP.)
- DECOMMISSION, DEMOLISH, AND SALVAGE OF THE GENERATOR AND ENCLOSURE ACCESSORIES
- DECOMMISSION, DEMOLISH, AND SALVAGE EXISTING SCADA PANEL
- DECOMMISSION, DEMOLISH, AND SALVAGE LIFT STATION PUMPS AND I & C DEVICES
- DEMOLISH EXISTING SERVICE AND METER (SHALL REMAIN UNTIL SWITCH OVER IS APPROVED)

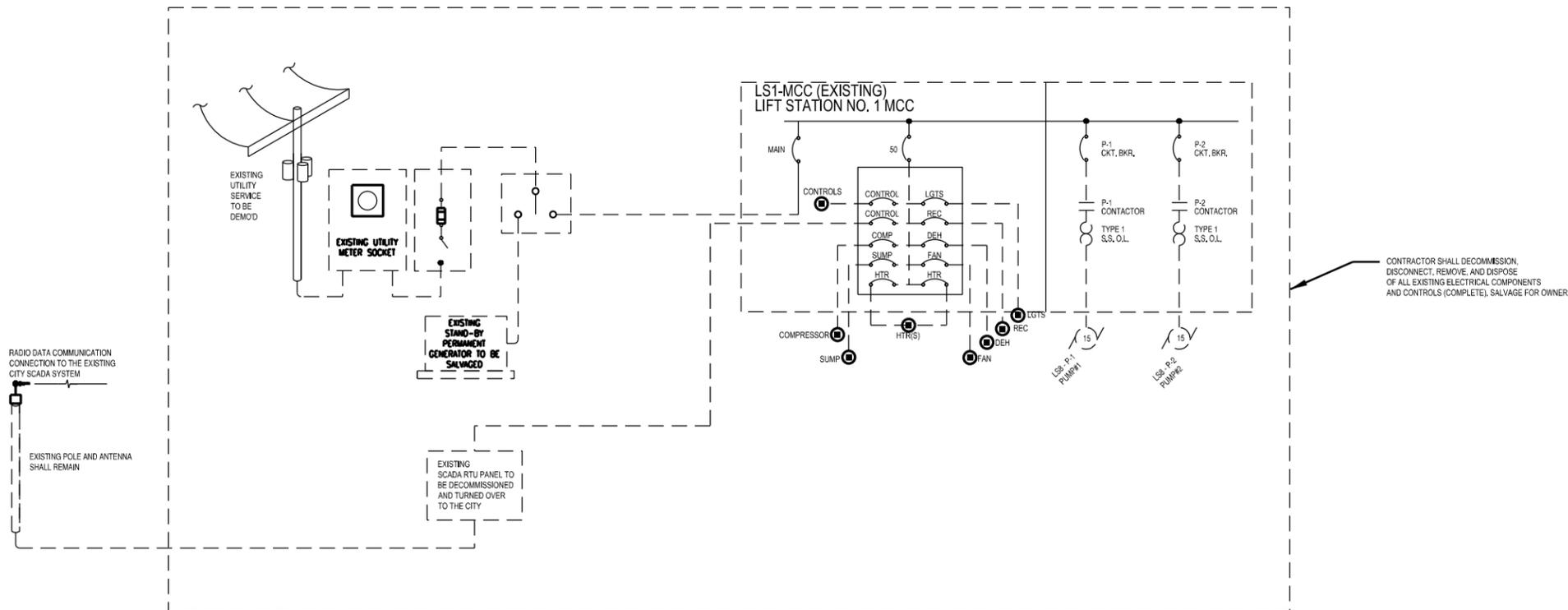
PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: sm@RB				
CHECKED BY: sm@V					
PLOT DATE: 00584065 E2 Electrical Site Plan.dgn 4/20/2015 3:44:58 PM sdolens					

MSA
 TRANSPORTATION • MUNICIPAL
 DEVELOPMENT • ENVIRONMENTAL
 148 North Central Ave. Marshfield, WI 54449
 715-384-2133 1-877-204-0572 Fax: 715-384-9787
 Web Address: www.msa-ps.com
 © MSA Professional Services, Inc.

ELECTRICAL SITE PLAN

8TH STREET LIFT STATION REPLACEMENT
 CITY OF MARSHFIELD - PLAN NO 4129
 MARSHFIELD, WI

FILE NO. 00584065
 SHEET E2



EXISTING ONE-LINE OVERVIEW
NTS

GENERAL ELECTRICAL NOTES:

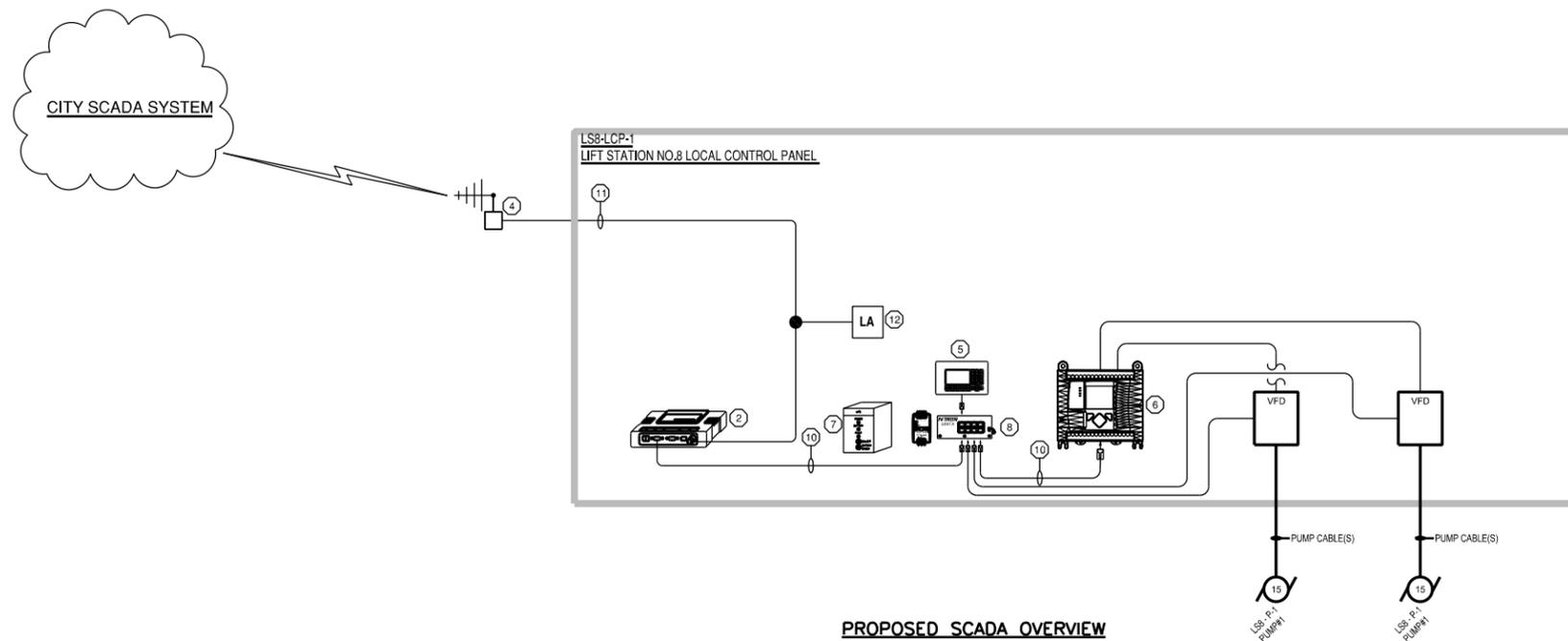
- DO NOT SCALE DRAWING IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFYING ACTUAL CONDUCTOR LENGTHS AND SIZES FOR VOLTAGE DIP.
- ALL CONDUIT FITTINGS AND CONNECTIONS SHALL BE WATER TIGHT.
- MINIMUM CONDUCTOR SIZES SHALL BE #12, UNLESS REQUIRED TO BE LARGER.
- MINIMUM CONTROL CONDUCTOR SIZE SHALL BE #14, UNLESS OTHERWISE NOTED.
- INFORMATION PROVIDED HEREIN HAS BEEN PREPARED BASED ON THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE CONTRACTOR SHALL VERIFY ACTUAL FIELD CONDITIONS.
- MINIMUM CONDUIT SIZE SHALL BE 3/4", UNLESS OTHERWISE NOTED.
- REFER TO ELECTRICAL PLANS AND SPECIFICATION FOR ADDITIONAL INFORMATION AND DETAILS.
- ALL ITEMS AND DEVICES SHOWN ARE FOR GENERAL INTENT AND CLARITY. ACTUAL LAYOUT AND INSTALLATION MAY VARY. BASED ON FIELD CONDITIONS. ALL CHANGES SHALL BE COORDINATED WITH OWNER AND FIELD ENGINEER.
- ELECTRICAL CONTRACTOR SHALL NOT DEENERGISE EXISTING SERVICE OR EQUIPMENT UNTIL PROPOSED SERVICE AND LIFT STATION IS DEEMED OPERATIONAL BY THE OWNER AND ENGINEER.
- ELECTRICAL INSTALLATION SHALL BE PERFORMED IN A WORKMANSHIP MANNER AND COMPLY WITH ALL RELEVANT CODES, REGULATIONS, AND GUIDANCES.
- THE CONTRACTOR SHALL DECOMMISSION, REMOVE AND DISPOSE EXISTING LIFT STATION AND APPURTANCES COMPLETE. OWNER RETAINS OWNERSHIP (FIRST RIGHT OF REFUSAL OF ALL ITEMS PRIOR TO DISPOSAL).
- EXISTING FACILITY SHALL REMAIN IN OPERATION UNTIL NEW STATION IS DEEMED OPERATIONALLY RELIABLE BY THE OWNER.

ELECTRICAL DEMOLITION PLAN NOTES:

- REMOVE AND DISPOSE EXISTING OVERHEAD SERVICE AND SERVICE POLE COMPLETE.
- COORDINATE REMOVAL OF EXISTING OVERHEAD FEEDERS.
- COORDINATE NEW UTILITY SERVICE POWER POLE WITH NEW UTILITY TRANSFORMERS WITH UTILITY. COORDINATE FINAL LOCATION WITH OWNER AND FIELD ENGINEER.
- NEW 3-PHASE PRIMARY FEEDERS BY UTILITY ALLOWANCE REFER TO PROPOSED ONE-LINE.
- REMOVE AND DISPOSE OF EXISTING POWER AND CONTROL CONDUITS COMPLETE.
- REMOVE AND DISPOSE EXISTING CONTROL PANEL, COMMUNOTOR CONTROL PANEL, COMMUNOTOR, EXHAUST FAN, ETC.
- REMOVE AND DISPOSE ALL ELECTRICAL DEVICES FROM EXISTING LIFT STATION.
- CONTRACTOR SHALL PROTECT THE EXISTING SCADA ANTENNA POLE. TO REMAIN FOR NEW STATION. PROVIDE NEW ANTENNA CABLE FROM NEW LCP TO ANTENNA.

PLAN NOTES:

- NOT USED.
- SCADA RADIO.
- NOT USED.
- SCADA RADIO YAG & ANTENNA AND MOUNT TO EXISTIN POLE.
- HMI/OIT AB PLUS 600.
- PLC (AB1400).
- UPS.
- MANAGED SWITCH.
- DISCRETE SIGNAL.
- ETHERNET CABLE.
- 7/8" HELIAX CABLE.
- LIGHTNING ARRESTOR.



PROPOSED SCADA OVERVIEW
NTS

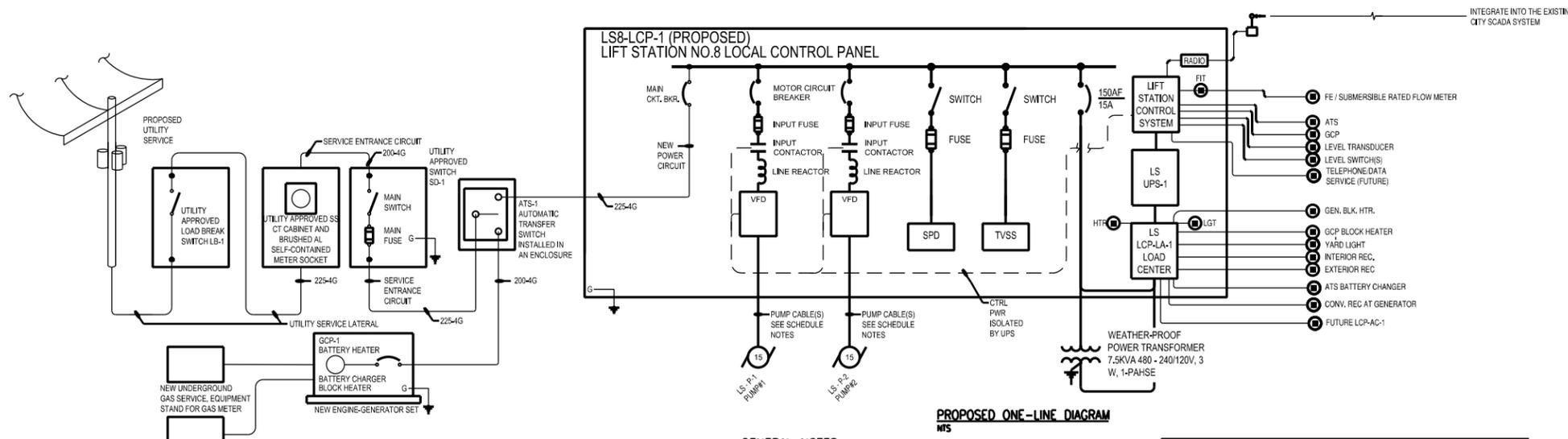
PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: 00584065 E1 EXISTING ONE-LINE DIAGRAM.dwg 4/20/2015 3:43:56 PM					

MSA
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

LIFT STATION ELECTRICAL

8TH STREET LIFT STATION REPLACEMENT
CITY OF MARSHFIELD - PLAN NO 4129
MARSHFIELD, WI

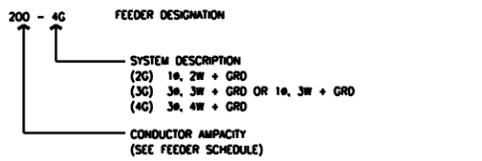
FILE NO.
00584065
SHEET
E 3



PROPOSED ONE-LINE DIAGRAM

GENERAL NOTES:

1. THE ABOVE FEEDER SCHEDULE IS A SCHEDULE OF TYPICAL FEEDERS AND SOME SIZES MAY NOT BE UTILIZED.
2. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-16 OF THE NEC FOR COPPER CONDUCTOR TYPE THW/THHN.
3. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DERATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.
4. WHERE MULTIPLE CONDUITS ARE INDICATED FOR A SINGLE FEEDER EACH CONDUIT SHALL CONTAIN AN A₀, B₀, C₀, GROUND CONDUCTOR, AND NEUTRAL CONDUCTOR.



GENERAL NOTES:

1. PROPOSED UTILITY SERVICE: PROVIDE COMPLETE COORDINATION FOR PROPOSED SERVICE. DIRECT COSTS FROM UTILITY WILL BE COVERED BY ALLOWANCE. ALL OTHER COST SHALL BE INCLUSIVE TO CONTRACT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM UTILITY SERVICE LATERAL; THE CONTRACTOR SHALL PROVIDE UTILITY UNDER GROUND SERVICE FROM POLE. (2) 4" PVC CONDUITS AND CONDUCTORS MINIMUM. THE CONTRACTOR SHALL INSTALL POLE RISER. UTILITY APPROVED SELF-CONTAINED METER SOCKET; PROVIDE UTILITY APPROVED SERVICE ENTRANCE. CT ENCLOSURE SHALL BE STAINLESS STEEL OR BRUSHED ALUMINUM. METER SOCKET SHALL BE BRUSHED ALUMINUM.
2. SERVICE ENTRANCE CIRCUIT: PROVIDE AS SCHEDULED.
3. SERVICE ENTRANCE DISCONNECT: PROVIDE NEMA 4X STAINLESS STEEL SERVICE AUTOMATIC TRANSFER SWITCH; ROUTE #14 SIGNAL CONDUCTOR(S) IN 1" CONDUIT(S) BETWEEN LIFT STATION CONTROL PANEL AND GENERATOR. COORDINATE WITH GENERATOR SUPPLIER AND CONNECT UTILITY POWER FAIL OUTPUT SIGNAL TO THESE CONDUCTORS. INSTALL CONTROL WIRING BETWEEN TRANSFER SWITCH AND GENERATOR CONTROL PANEL AS REQUIRED BY GENERATOR MANUFACTURER. GENERATOR BATTERY CHARGER SHALL BE LOCATED INSIDE TRANSFER SWITCH, WIRE AS DIRECTED BY MANUFACTURER.
4. GENERATOR CIRCUIT: PROVIDE GENERATOR CIRCUIT AS SCHEDULED.
5. ENGINE GENERATOR SET: PROVIDE DUAL FUEL NG/LP FUELED ENGINE GENERATOR SET AS SCHEDULED. INSTALL COMPLETE WITH NATURAL GAS SERVICE AS REQUIRED. INSTALLATION SHALL INCLUDE CONCRETE BASE, BLOCK HEATER, CONTROL AND STATUS SIGNALS, AND OTHER ACCESSORIES SPECIFIED. INSTALL AND CONNECT COMPLETE (TYP.).
6. NATURAL GAS UTILITY SERVICE: PROVIDE COMPLETE COORDINATION OF A PROPOSED SERVICE. DIRECT COSTS FROM UTILITY WILL BE COVERED BY ALLOWANCE. ALL OTHER COST SHALL BE INCLUSIVE TO CONTRACT.
7. NG/LP DUAL FUEL SERVICE METER AND REGULATOR: PROVIDE AND INSTALL UTILITY APPROVED SERVICE METER. METER SHALL BE MOUNTED/SUPPORTED TYPICAL GALVANIZED EQUIPMENT RACK STYLE SUPPORTS, METER, REGULATOR, AND SERVICE SHALL BE LOCATED NOT TO IMPACT ACCESS THE OPERATION OF FACILITY EQUIPMENT. THE REGULATOR SHALL BE INCLUSIVE TO THIS CONTRACT.
8. NATURAL GAS SERVICE LATERAL: PROVIDE AND INSTALL UTILITY APPROVED SERVICE LATERAL. SIZE PER UTILITY AND GENERATOR MFR RECOMMENDATION.
9. ENGINE GENERATOR CONTROL PANEL: ROUTE #14 SIGNAL CONDUCTOR(S) IN 1" TO LIFT STATION CONTROL PANEL AND ATS. COORDINATE WITH GENERATOR SUPPLIER AND CONNECT GENERATOR RUN AND GENERATOR FAIL OUTPUT SIGNALS TO THESE CONDUCTORS.
10. ENGINE GENERATOR COOLANT HEATER: PROVIDE RECEPTACLE MOUNTED INSIDE GENERATOR HOUSING FOR GENERATOR BLOCK HEATER. ROUTE 2#10 & #10G IN 3/4" TO 30A/1P CIRCUIT BREAKER IN CONTROL PANEL. COORDINATE EXACT REQUIREMENTS WITH GENERATOR MANUFACTURER.
11. LS8-LCP-1: PROPOSED LIFT STATION CONTROL PANEL AND INTERNAL COMPONENTS AS SCHEDULED AND SPECIFIED. PROPOSED PANEL SHALL INTEGRATE TO COORDINATE FACILITY OPERATION AS SHOWN. P-1 & P-2 MOTOR CONTROLLERS: PROVIDE MOTOR CONTROL COMPONENTS AS SCHEDULED. INSTALL PUMP CABLES AS DETAILED. PUMP CABLES SHALL BE PROVIDED BY PUMP MANUFACTURER AND SIZED FOR THE FULL LOAD OF THE PUMP MOTOR. PUMP CABLES MAY INCLUDE SENSOR (HIGH TEMPERATURE AND SEAL FAIL) WIRING OR SECOND CABLE MAY BE PROVIDED FOR THIS PURPOSE.
12. ALARM CIRCUITS: PROVIDE AND TRANSFER ALARM SIGNALS TO ALARM NOTIFICATION SYSTEM VIA DATA RADIO TO AUTOMATIC ALARM DIALER LOCATED AT THE WWTF.
13. CONTROL POWER SYSTEM: CONTROL PANEL SUPPLIER SHALL BE RESPONSIBLE FOR SIZING CONTROL POWER COMPONENTS BASED ON THE CONNECTED LOAD OF THE BRANCH CIRCUITS FED BY THE CONTROL POWER SYSTEM.
14. WETWELL LEVEL TRANSDUCER: PROVIDE AND INSTALL LEVEL TRANSDUCER AS DETAILED. CABLE SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLE SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED (TYP.).
15. WETWELL FLOAT SWITCH(ES): PROVIDE AND INSTALL FLOAT SWITCH(ES) AS DETAILED. FLOAT SWITCH CABLES SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLES SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED (TYP.).
16. EXTERIOR RECEPTACLE: PROVIDE AND INSTALL ONE EXTERIOR WEATHERPROOF/GFCI RECEPTACLE AT THE EQUIPMENT MOUNTING RACK AS DETAILED. ROUTE 2#12 & #12G IN 3/4" TO 20A/1P CIRCUIT BREAKER IN CONTROL PANEL.
17. NOT USED
18. SURGE PROTECTIVE DEVICES: PROVIDE UL LISTED. 160KA MIN ON SERVICE OF THE LIFT STATION CONTROL PANEL.
19. TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICES: PROVIDE UL LISTED TSS INSIDE THE LIFT STATION CONTROL PANEL.
20. PANEL LIGHT: INTERIOR LAMP FIXTURE WITH PASSIVE SWITCH AND HARD SWITCH IN PARALLEL. RADIO: RELOCATE AND REUSE THE EXISTING RADIO, AND ALL REQUIRED MATERIALS TO PROVIDE THE LINK BETWEEN THE LIFT STATION AND WWTF. REUSE REMOTE RADIO INSIDE THE LIFT STATION CONTROL PANEL. CONNECT SPECIFIED SIGNALS FROM LIFT STATION TO THE MTU LOCATED AT THE WWTF (COMPLETE AND OPERABLE).
21. UTILITY TRANSFORMER: PROVIDE UTILITY APPROVED SECONDARY SERVICE AND RISER AND APPURTENANCES(S). UTILITY TRANSFORMER AND OTHER DIRECT UTILITY FEE(S) WILL BE PAID BY THE ALLOWANCE. OTHER COST NO BY UTILITY SHALL BE INCLUSIVE TO THE CONTRACT. (EX.) RACEWAYS, CONDUCTORS, ETC.
22. LP GAS SUPPLY CONNECTION AND LATERAL: PROVIDE AND INSTALL LP SUPPLY CONNECTION SIZE PER UTILITY AND GENERATOR MFR RECOMMENDATION. LINE SHALL BE COPPER WITH ISOLATION VALVES, VIBRATIONS ISOLATION HOSE, AND GROUND BOX.
23. LS8-XEMR-1: EXTERIOR MOUNT 480-240/120V 7.5 KVA TRANSFORMER. PROVIDE SS WEATHER SHIELD.
24. YARD LIGHT: FURNISH AND INSTALL BASE, POLE, AND FIXTURE AS SCHEDULED. BRANCH FEED IN SERIES A SWITCH & PHOTO CELL. (3) #12 & #12G IN 3/4" C.

GENERAL NOTES:

1. REFER TO PROJECT GENERAL NOTES ON SHEET E2.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION SIZE HOMERUN WIRING PER ONE-LINE DIAGRAM AND WIRE SCHEDULE.
3. CONDUIT SIZE 3/4", UNLESS OTHERWISE NOTED.
4. ALL BRANCH CIRCUIT HOMERUNS TO BE (2)#12 & #12G IN 3/4" MINIMUM UNLESS OTHERWISE NOTED OR REQUIRED. MOTOR WIRING AS INDICATED ON ONE-LINE DIAGRAM.
5. ALL DEVICE/SIGNAL CIRCUIT HOMERUNS TO BE (2)#14 & IN 3/4" MINIMUM.
6. PROVIDE ALL MOTOR AND SIGNAL CIRCUIT HOMERUNS RELATED TO PROCESS EQUIPMENT.
7. COORDINATE EXACT LOCATION OF ALL EQUIPMENT AND FIXTURES WITH GC, OWNER, AND ENGINEER PRIOR TO ROUGH-IN.
8. EC SHALL MODIFY WIRE AND CIRCUIT SIZES BASED ON ACTUAL EQUIPMENT SUPPLIED.
9. CONTRACTOR SHALL REVIEW TYPICAL DETAILS AND ALL CONSTRUCTION SHALL COMPLY WITH ALL TYPICAL DRAWINGS AND DETAILS.
10. EQUIPMENT AND DEVICES SHALL BE ROUGH IN CONDUIT FOR CONTROL AND CABLES TO BOXES. ROUGH-IN CONDUIT AND MAKE PROVISION FOR FUTURE CABLING FOR POWER AND CONTROL. (TYP.)
11. DISCONNECTS RELATED TO PROCESS CONNECTIONS SHALL BE PROVIDED AND INSTALLED BY THE EC.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND LABELING ALL

FEEDER SCHEDULE (600 V)

FEEDER AMPACITY	CONDUCTOR SIZE (ncmi)		CONDUIT SIZE	
	# & N	GRD	3ø & GRD.	3ø & N & GRD.
20	#12	#12	3/4"	3/4"
30	#10	#10	3/4"	3/4"
40	#8	#10	3/4"	1"
50	#6	#10	1"	1"
70	#4	#8	1-1/4"	1-1/4"
80	#3	#8	1-1/4"	1-1/4"
100	#1	#8	1-1/2"	2"
110	#2	#6	1-1/4"	1-1/2"
125	#1	#6	1-1/2"	2"
150	#1/0	#6	1-1/2"	2"
175	#2/0	#6	2"	2"
200	#3/0	#6	2"	2-1/2"
225	#4/0	#4	2"	2-1/2"
250	#250	#4	2-1/2"	3"
300	#350	#4	3"	3"
350	#500	#3	3"	3-1/2"
380	#500	#3	3"	3-1/2"
400	(2) # 3/0	(2) # 3	(2) 2"	(2) 2-1/2"
450	(2) # 4/0	(2) # 2	(2) 2"	(2) 2-1/2"
500	(2) # 250	(2) # 2	(2) 2-1/2"	(2) 3"
600	(2) # 350	(2) # 1	(2) 3"	(2) 3"
700	(2) # 500	(2) # 1/0	(2) 3"	(2) 3-1/2"
800	(2) # 600	(2) # 1/0	(2) 3-1/2"	(2) 4"
1000	(3) # 400	(3) # 2/0	(3) 3"	(3) 3-1/2"
1200	(3) # 600	(3) # 3/0	(3) 3-1/2"	(3) 4"
1600	(4) # 600	(4) # 4/0	(4) 3-1/2"	(4) 4"
2000	(5) # 600	(5) # 250	(5) 3-1/2"	(5) 4"

LIFT STATION ELECTRICAL DATA													
ELECTRIC SERVICE ENTRANCE				PUMP DATA									
VOLTAGE	AMPACITY	SERVICE LATERAL	SERVICE ENTRANCE CIRCUIT	SERVICE DISCONNECT SWITCH	HORSEPOWER	CIRCUIT BREAKER	INPUT CONTACTOR	SSRV	AFD	CABLE(S)	PERMANENT GENERATOR	AUTOMATIC TRANSFER SWITCH	GENERATOR CIRCUIT
480/277V 3Ø 4W	200A	1-3"	4#3Ø & #6G IN 1-2"C	200A/3Ø 4W/200AF	15	150AF/50AT - MCP	FVNR - SIZE 2	NA	15	1	45-50 KW	150A	#3Ø & #6G IN 1-2"C

NOTES:

1. COORDINATE WITH PUMP MANUFACTURER AND DETERMINE NUMBER AND SIZE OF PUMP CABLES. SIGNAL CABLE FOR HIGH TEMPERATURE AND SEAL FAIL SENSOR WIRING MAY BE PROVIDED AS A SEPARATE CABLE OR INTEGRAL TO THE PUMP POWER CABLE BASED ON PUMP MANUFACTURER DESIGN. SIZE PUMP CABLE CONDUITS AS NEEDED TO SATISFY NEC REQUIREMENTS FOR CONDUIT FILL. PUMP SENSOR
2. PANEL SHALL BE AIR CONDITIONED.

FIXTURE, POLE, AND BASE SCHEDULE												
PLAN ID	FIXTURE	POLE	BASE	FIXTURE DESCRIPTION	LAMP	MANUFACTURE	MODEL	GENERAL PART NUMBER	OPTIONS	LUMINAIRE WARRANTY	NOTES:	COMMENTS
Y1	Y1	P1	B1	POLE MOUNTED LED AREA LUMINAIRE	120 LED	B&L LED TECHNOLOGY BY CREE	STR-LWY	STR-LWY-3MB-HT-09-E-UL-BK-700-40K-F-PD-R-SC-UTL	40K-F-PD-R-SC-UTL	5-YEAR	1.2,3,4,5,7	
P1	Y1	P1	B1	3Ø ALUMINUM POLE WITH 6 TENNIS ARM	NA	HAPCO	ARLEN	RTA 3C088472A-32/532P1-BLACK FINISH	6' ARMS		1.3,6,7,8,9	
B1	Y1	P1	B1	24" DIAMETER X 72" RC BASE (4" AFG)							1.3,6,7,8,9	

NOTES:

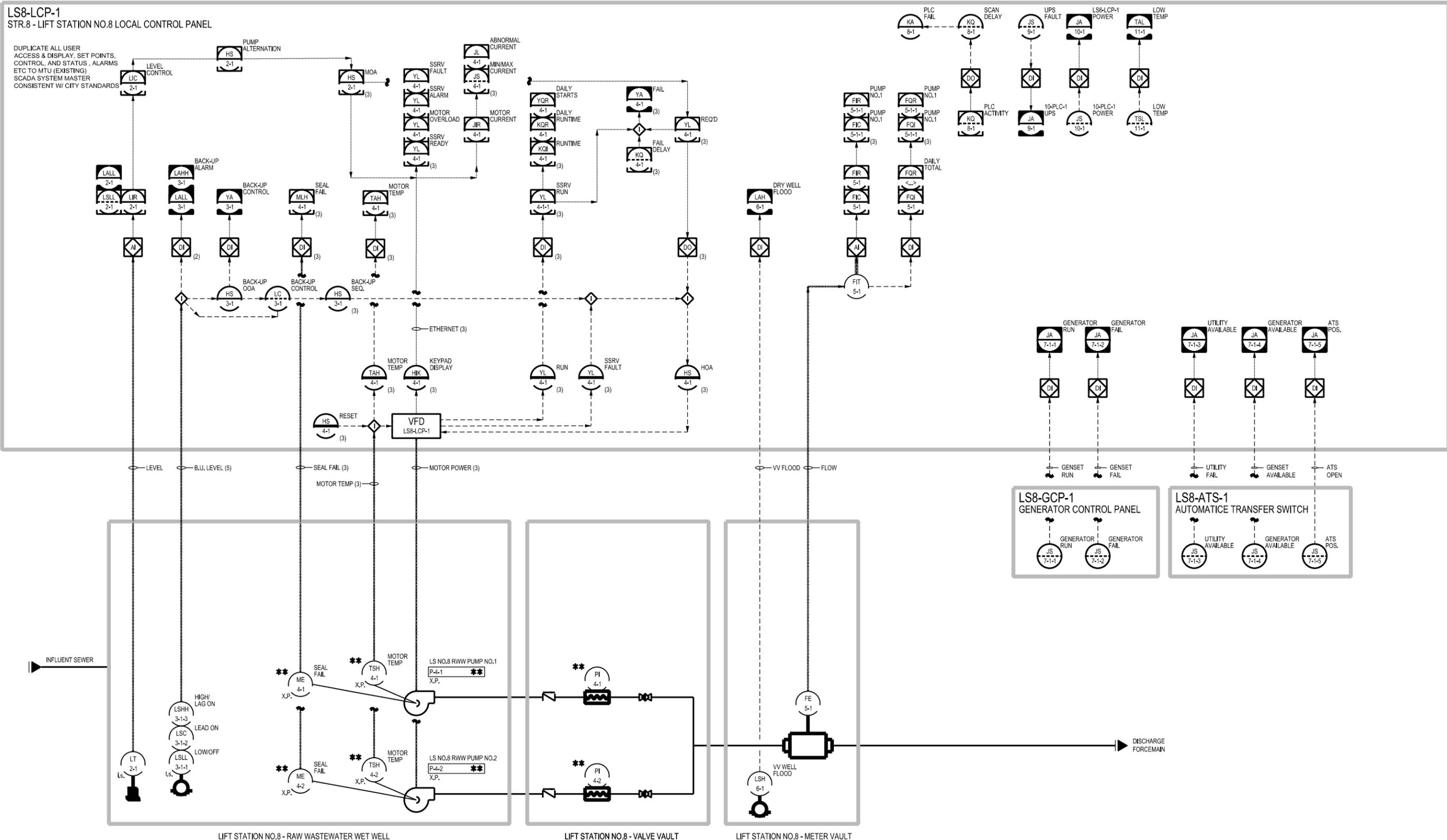
1. MATERIALS SHALL INCLUDE FUSED #12 AWG WIRE AND ASSOCIATED HARDWARE FOR BRANCH CIRCUITS FOR 240V AND 120V TO SUPPLY LUMINAIRE AND FLEETON REC AS REQUIRED. WIRING AND GROUNDING AND BONDING SHALL BE INCLUSIVE.
2. SHALL BE APPROVED BY WISDOT, OR BE APPROVABLE BY THE WISDOT
3. REFER TO TYPICAL DIAGRAMS
4. SHALL BE DESIGNED TO OPERATED IN COLD TEMPERATURES.
5. ALL BALLASTS SHALL BE LOW HARMONIC
6. POLES AND BASES SHALL THE ERCTED WITH NOT MORE THAN 1/4" OUT OF PLUMB IN 1Ø.
7. FINAL LOCATION OF EQUIPMENT TO BE DETERMINED AND VERIFIED WITH THE OWNER.
8. WET SET GALVANIZED ANCHOR BOLTS PER THE POLE BOLT REQUIREMENTS.
9. REFER TO AND ACCOUNT FOR SUBSURFACE CONDITIONS AND CONSTRUCTION (EBS) THAT MAY EFFECT INSTALLATION. FEEDER ROUTES SHOWN ON PLANS ARE APPROXIMATE.

CM-MTU-1
CITY OF MARSHFIELD MASTER TELEMETRY UNIT (PARTIAL)

DUPLICATE ALL USER ACCESS & DISPLAY, SET POINTS, CONTROL, AND STATUS, ALARMS ETC TO MTU (EXISTING) SCADA SYSTEM MASTER CONSISTENT W/ CITY STANDARDS

LS8-LCP-1
STR.8 - LIFT STATION NO.8 LOCAL CONTROL PANEL

DUPLICATE ALL USER ACCESS & DISPLAY, SET POINTS, CONTROL, AND STATUS, ALARMS ETC TO MTU (EXISTING) SCADA SYSTEM MASTER CONSISTENT W/ CITY STANDARDS

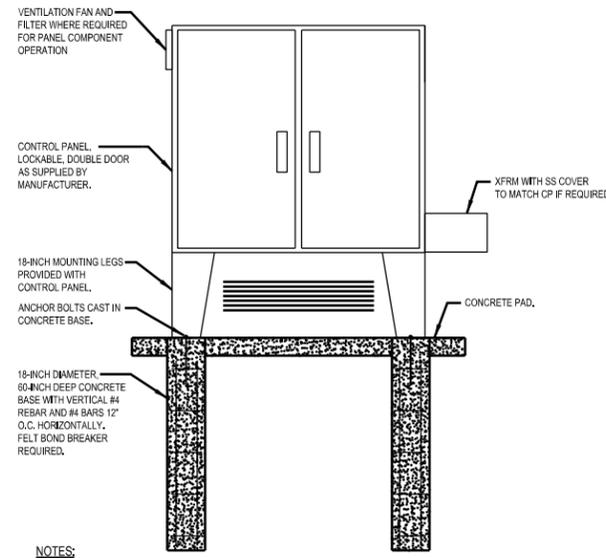


PROJECT NO.	SCALE	AS SHOWN	NO.	DATE	REVISION	BY
00584065	AS SHOWN					
PROJECT DATE: 4/09/15	DRAWN BY: ARB					
CHECKED BY: MAV						
PLOT DATE: 00584065 E5 P&ID.dwg 4/30/2015 3:43:59 PM adobes						

LIFT STATION ONE-LINE DIAGRAM & SCADA DETAILS

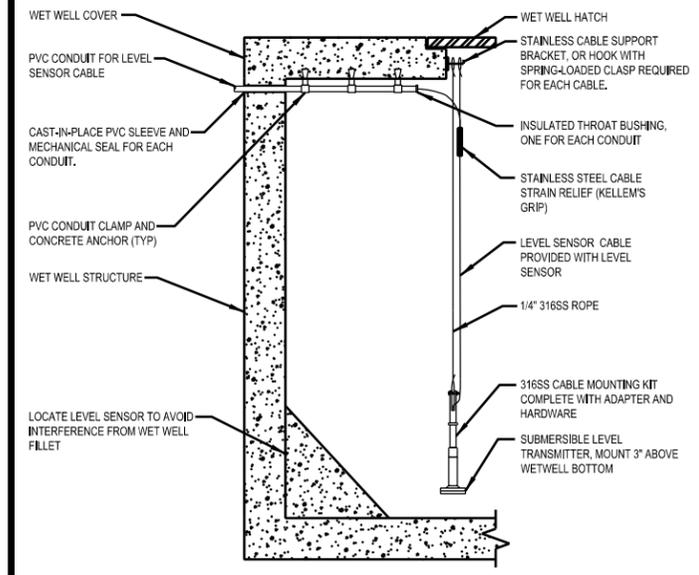
8TH STREET LIFT STATION REPLACEMENT
CITY OF MARSHFIELD - PLAN NO 4129
MARSHFIELD, WI

FILE NO.
00584065
SHEET
E 5



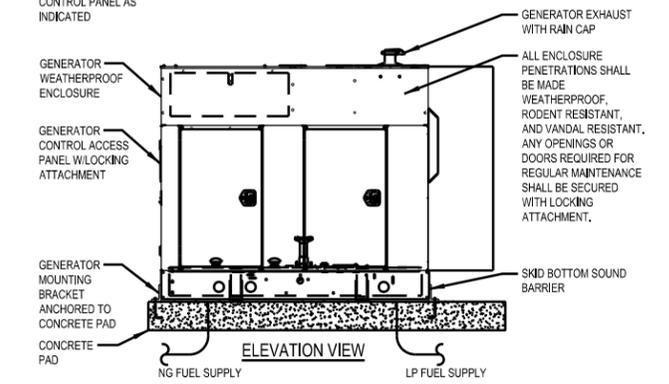
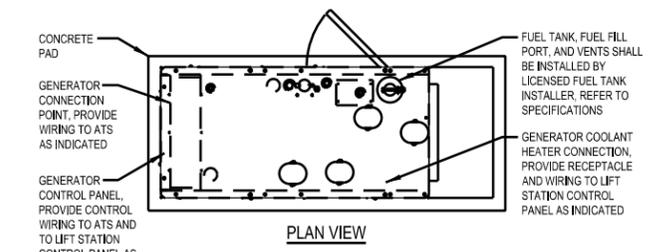
- NOTES:**
1. REFER TO SITE PLAN FOR LOCATION AND ORIENTATION.
 2. ALL HARDWARE SHALL BE CONSTRUCTED OF STAINLESS STEEL.

LIFT STATION CONTROL PANEL INSTALLATION
NTS



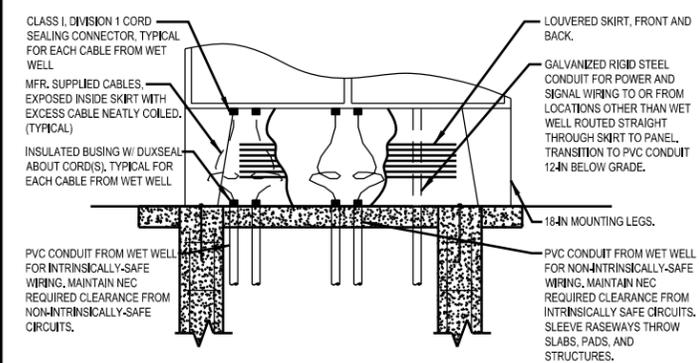
- NOTES:**
1. INSTALL LEVEL SENSOR IN LOCATION WHERE SUSPENSION HOOKS, CABLES, AND CONDUIT ENDS ARE ACCESSIBLE FROM THE WET WELL HATCH WITHOUT ENTERING THE WET WELL.
 2. CONNECT LEVEL SENSOR BREATHING TUBE (IF PROVIDED) PER MANUFACTURER'S INSTRUCTIONS.
 3. PROVIDED SUFFICIENT SLACK CABLE, COILED AND SUSPENDED FROM HOOK, TO ALLOW ADJUSTMENT +/- 3 FT. FROM SPECIFIED ELEVATION.

SUBMERSIBLE LEVEL TRANSMITTER INSTALLATION
NTS

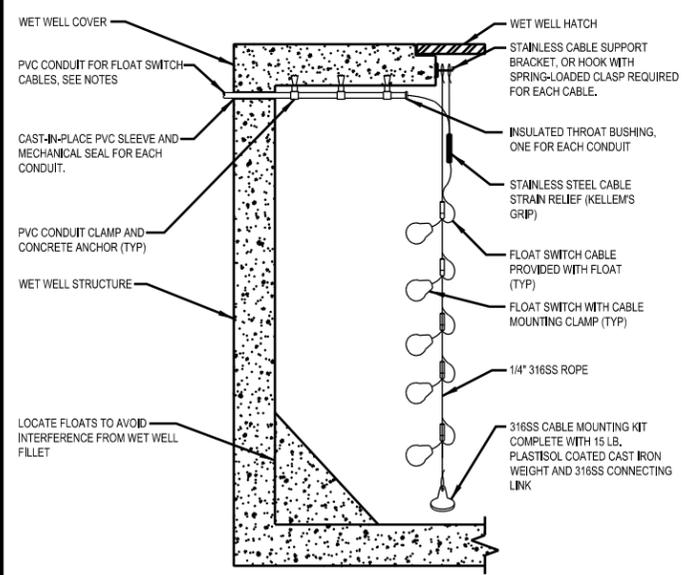


- NOTES:**
1. INSTALL GENERATOR PER MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH ALL CODES, AND ON CONCRETE ISOLATION PAD, REFER TO PLANS.
 2. REFER TO SITE PLAN FOR LOCATION AND ORIENTATION.

PERMANENT, ON-SITE GENERATOR INSTALLATION
NTS

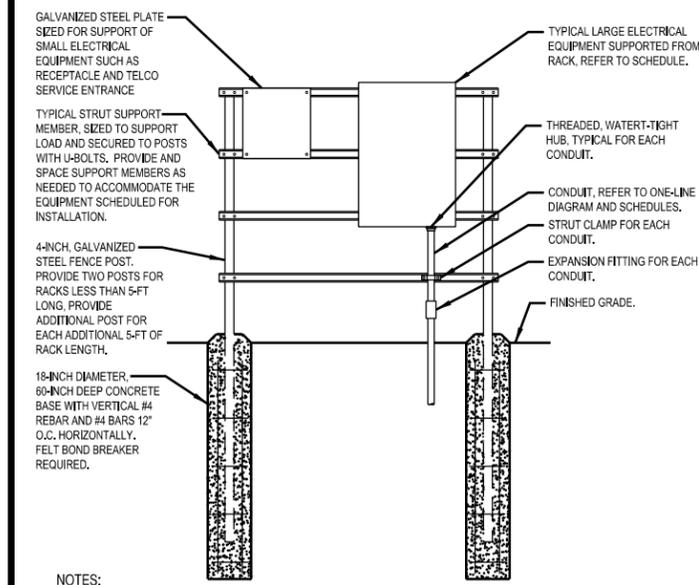


LIFT STATION CONTROL PANEL CABLE AND CONDUIT ENTRANCE INSTALLATION
NTS



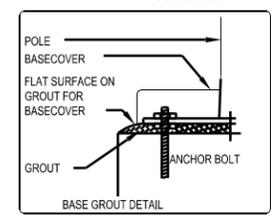
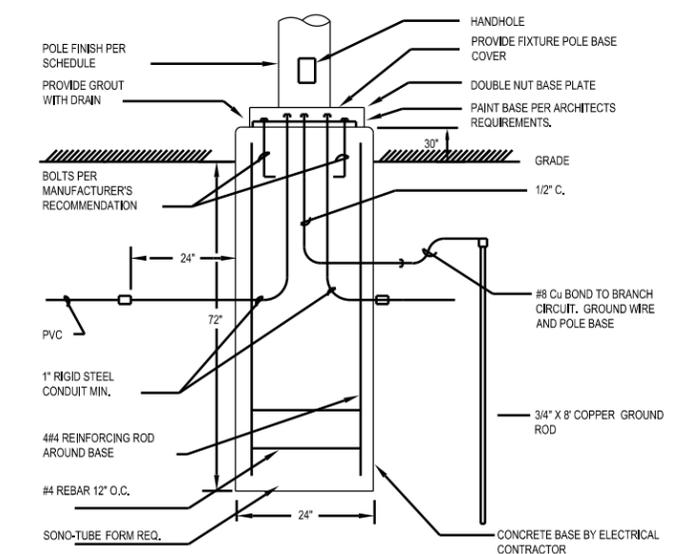
- NOTES:**
1. INSTALL FLOAT SWITCHES IN LOCATION WHERE SUSPENSION HOOKS, CABLES, AND CONDUIT ENDS ARE ALL ACCESSIBLE FROM THE WET WELL HATCH WITHOUT ENTERING THE WET WELL.
 2. INSTALL NO MORE THAN THREE FLOAT SWITCH CABLES IN EACH 2-1/2" CONDUIT. PROVIDE MULTIPLE CONDUITS IF MORE THAN THREE FLOATS ARE SPECIFIED.
 3. REFER TO PLANS AND SPECIFICATIONS FOR THE NUMBER OF FLOAT SWITCHES REQUIRED. ADJUST FLOAT SWITCH MOUNTING TO ACHIEVE ACTIVATION ELEVATIONS AS SPECIFIED, SHOWN ON PLANS, OR DIRECTED IN THE FIELD BY THE ENGINEER.
 4. FLOAT SWITCH GROUND CONDUCTOR SHALL BE SOLIDLY GROUNDED.
 5. PROVIDED SUFFICIENT SLACK CABLE, COILED AND SUSPENDED FROM HOOK, TO ALLOW ADJUSTMENT +/- 3 FT. FROM SPECIFIED ELEVATION.

CABLE SUSPENDED FLOAT SWITCH INSTALLATION
NTS



- NOTES:**
1. REFER TO SITE PLAN FOR LOCATION AND ORIENTATION.
 2. CONTRACTOR SHALL VERIFY THAT SELECTED COMPONENTS ARE SUITABLE FOR THE WEIGHT OF THE MOUNTED EQUIPMENT.
 3. SUPPORT MEMBERS SHALL BE CONSTRUCTED OF GALVANIZED STEEL. ALL HARDWARE SHALL BE CONSTRUCTED OF STAINLESS STEEL.
 4. THE FOLLOWING EQUIPMENT SHALL BE MOUNTED ON THE SUPPORT RACK:
UTILITY METER LOAD-BREAK SWITCH
UTILITY APPROVED SELF-CONTAINED METER SOCKET
SERVICE DISCONNECT SWITCH
AUTOMATIC TRANSFER SWITCH
EXTERNAL CONTROL POWER TRANSFORMER
EXTERIOR RECEPTACLE
TELEPHONE SERVICE NG METER

EQUIPMENT RACK INSTALLATION
NTS



EXTERIOR LIGHTING CONCRETE BASE DETAIL
NTS

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: 00584065 E6 DETAILS.dwg 4/26/2015 3:44:06 PM addison					

MSA PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL

146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com

© MSA Professional Services, Inc.

LIFT STATION ELECTRICAL DETAILS

8TH STREET LIFT STATION REPLACEMENT
CITY OF MARSHFIELD - PLAN NO 4129
MARSHFIELD, WI

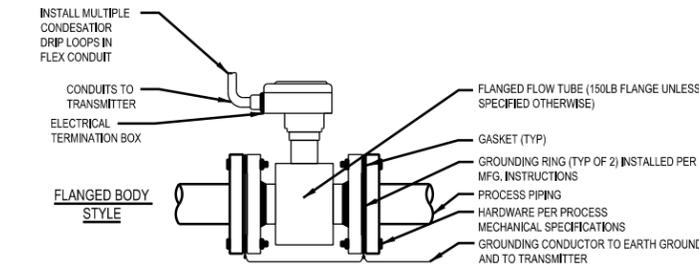
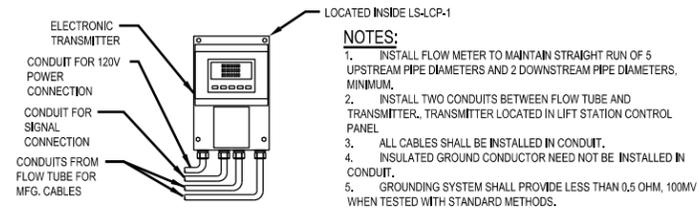
FILE NO. 00584065
SHEET E 6



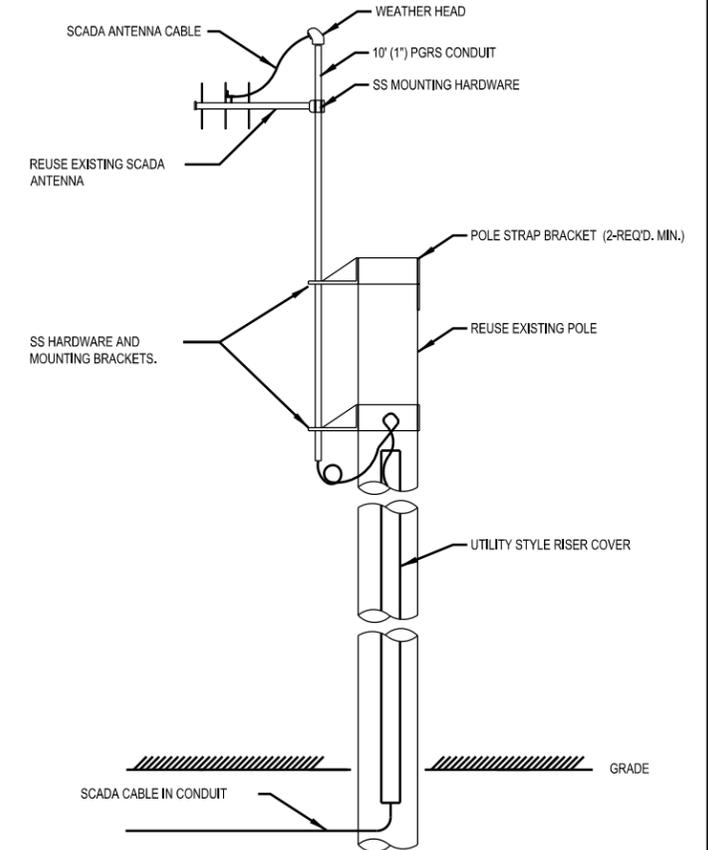
EXISTING UTILITY POWER POLE TO REMAIN
NTS



EXISTING LS-8 TO BE REMOVED, SALVAGED AND ABANDONED
NTS



SUBMERSIBLE RATED XP ELECTROMAGNETIC FLOW METER AND TRANSMITTER INSTALLATION
NTS



- NOTES:**
1. COMMUNICATION CONDUCTORS SHALL BE ISOLATED FROM EACH OTHER PER CODE.
 2. ALL HARDWARE SHALL BE CONSTRUCTED OF STAINLESS STEEL.

POLE AND ANTENNA DETAIL
NTS



EXISTING SCADA POLE TO REMAIN
NTS

PROJECT NO.: 00584065	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 4/09/15	DRAWN BY: ARB				
CHECKED BY: MAV					
PLOT DATE: 00584065 E7 DETAILS NO.2.dwg 4/20/2015 3:44:01 PM adblaw					

MSA
PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
146 North Central Ave., Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787
Web Address: www.msa-ps.com
© MSA Professional Services, Inc.

LIFT STATION ELECTRICAL DETAILS

8TH STREET LIFT STATION REPLACEMENT
CITY OF MARSHFIELD - PLAN NO 4129
MARSHFIELD, WI

FILE NO.
00584065
SHEET
E 7