PRE-BID ADDENDUM No. 001
for
LITTLEFIELD TOWNSHIP
HAY LAKE MARINA PARK
MARINA AND SITE IMPROVEMENTS

Date of Issue: Monday – November 13, 2018

CHANGES TO THE CONTRACT DOCUMENTS:

SUPPLIMENTAL INSTRUCITONS TO BIDDERS: Certificate of Awardability will not be required as part of accepted bid proposals. Compliance with all State and Federal anti-discrimination laws still apply.

CHANGES TO THE TECHNICAL SPECIFICATIONS:

INDEX – TECHNICAL SPECIFICATIONS: Eliminate 02660 Water Distribution from the Division 2 – SITEWORK list. This specification is not part of the bidding/contract documents.

SECTION 02490 – STEEL COMPONENTS: Spec. Section 2.01(A): Add requirement that all helical pier components including brackets be galvanized.

SECTION 02511 – HMA PAVING: Spec. Section 2.01(B &C): Disregard 13A HMA material specification for leveling and wear courses. Utilize Tier 1 4E1 (max. 17% RAP), 3% air voids, PG58-28 MDOT approved mix design for both leveling and wear course. Refer to attached Emmet Co. Road Commission special provision for additional requirements to this section.

SECTION 11307 – SUBMERSABLE DUPLEX GRINDER PUMP STATION:
Spec. Section 1.02(B)1: Pumps shall have a minimum shut off head of 185', not 190'.
Spec. Section 2.02(C)1: Motor shall be single phase, not three phase.

CHANGES TO PLANS:

SHEET S1: See updated sheet with additional existing site grade information and upland contour grades.

SHEET S7: See updates Site Utility Notes for clarifications and additional force main and water system requirements.

SHEET S9: See updated fire intake detail with new call out for 6” NH female connection and 6” HDPE intake pipe.

SHEET S14: See updated Pump Station – Profile detail with relocated ball check valve to vertical position along discharge line. Change minimum shutoff head in pump requirement notes from 190’ to 185’.

RECEIVED QUESTIONS AND ANSWERS FOR CLARIFICATIONS:

Q: What type of finish is desired on steel culverts and end sections?
A: Galvanized

Q: Are staking and testing numbers available from Gosling Czubak
A: Yes, staking and testing numbers should be available from Gosling-Czubak. Please contact Craig Pullen regarding staking and Jeff Kowalkski for testing (both at 231-946-9191)

Q: The MDEQ permit notes that no dredging shall occur between April 15 – July 15 due to fish spawning times, does this apply for this project?
A: The MDEQ and DNR Fisheries have indicated that as long as all work is within the marina dredge basin, per plans, and turbidity curtain is in place, there will be no dredge timing restrictions for this project. Formal permit modification requests are in process to modify the permit and relieve the dredge timing restrictions.

Q: What is the anticipated award date?
A: Anticipate award date would be Mid-January following MDNR approvals, though contractor recommendations would be made prior to early-December Township Board meetings.

Q: What type of dredging will be allowed?
A: Only mechanical dredging has been permitted. We expect mechanical dredging to be used, especially since we will be re-establishing the marina basin edge and vegetation removal is expected.

Q: Do we need galvanized steel frame for skid pier and finishes? Reference miscellaneous metals spec.
A: Yes, all steel for the skid pier shall be galvanized finish.

Q: Will spring road weight restrictions apply to Admiral’s Point Drive being that it is a private drive? Or, could spring weight restrictions be waived for this project?
A: Spring weight restrictions do not apply for Admiral's Point Dr., though we would prefer trucking of dredge materials to occur outside of the spring weight restriction timeframe.

Q: Are tiebacks for the timber retaining wall needed for the side "wing" walls?

A: Yes. Tiebacks should be planned for the wing walls, though the wing walls begin to step down (approx. last 1/3 of the wing wall) and meet proposed boardwalk grade

Q: The pile supported boardwalk pay item is per SFt. Is this measured at the surface of the decking or at the framing dimensions shown on the drawings?
A: Calculated square footage of boardwalk system is based on surface area of decking.

Q: Is it correct that galvanized bolts should be used for sheet pile tieback and rod connections, and zinc or cadmium for sheet pile waler connection (details sheet S9)
A: Yes

Q: Are the sheet pile system waler spacers on top of or between the two c-channels?
A: Between

Q: Could you please be more specific about the site furnishing models you would like for the project? Specifically, the pattern for the Table and the exact model for the benches.
A: For the Spyder tables, we will want the diamond pattern material. For the backed benches, we are going with model GV303G/GV304G inground mount.

Q: The spec for the aggregate base shows a 21AA modified material. Will an MDOT 21AA material be accepted?
A: We want to stay with the 21AA modified material as specified in bidding documents.

End of Pre-Bid Addendum #1
--
See Attachments

EMMET COUNTY ROAD COMMISSION
SPECIAL PROVISION
FOR
ACCEPTANCE OF HMA MIXTURE ON TOWNSHIP PROJECTS

ECRC: BAG 01/22/2018

a. **Description**

This Special Provision provides acceptance-testing requirements for use on this project. The HMA mixture shall be provided to meet the requirements of the standard specifications for construction except where modified herein. The HMA mixture quality assurance and acceptance shall conform to Section 501 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except where modified herein. The MDOT HMA Production Manual, current edition, applies to this work.

b. **Submittals**

The following items shall be submitted to the Engineer before payment will be issued.

1. Job Mix Formula (MDOT Form 1911) for the project for review and approval by the Engineer. The Contractor shall not place any HMA without an approved JMF.
   i. Fine Aggregate Angularity
   ii. RAP Tiering based on JMF values
   iii. Fines to Asphalt Ratio (based on Effective Asphalt Content)
   iv. Soft Particle Percentage of each JMF Aggregate Type
2. Quality Control Plan.
3. A copy of all Contractor Quality Control Tests submitted within 7 working days of project completion.
4. A copy of the Bill of Lading or Delivery Ticket for the Asphalt Binder for the project. The Bill of Lading must include the type of material that was previously hauled in the delivery tank.

c. **Materials**

Aggregates, mineral filler (if required), and asphalt binder shall be combined as necessary to produce a mixture proportioned within the master gradation limits and meeting the uniformity tolerances listed in Table 1 and the quality assurance testing tolerances in Table 2 of this special provision. The master gradation range is to be used for establishing mix design only. Topsoil, clay or loam shall not be added to aggregates used in plant produced HMA mixtures.

The maximum Percentage of Soft Particles for any HMA mixture shall be 5%.

Table A: HMA MIXTURE TARGETS AND PARAMETERS

HMA Mix Type	VMA Min. on any give Test (a.c)	VMA Target (c)	Asphalt Binder Content Minimum JMF	Asphalt Binder Content Min. on any given test (a)	Fines to Asphalt Ratio Max. on JMF (b)
4E1	14.0	Based on mix design parameters, the contractor shall establish & state their VMA Target on the mix design JMF, and shall adhere to the VMA Min.	5.80	5.50	1.10
5E1	15.0		6.10	5.80	1.10
Ultra-thin	15.5		6.00	5.70	1.20

a. The HMA parameter minimum is per any given QC/QA test, regardless of Tolerances listed in Table 2 of this Special Provision.
b. Value based on Pbe (Effective Asphalt Percent) for each given mix and JMF
c. VMA values are based on the Gsb (Bulk Specific Gravity) of the given HMA mixture not the Gse (Effective Specific Gravity).

Table B: HMA Mixture Targets and Parameters Cont'd (Ultra-Thin)

Superpave Air Voids (%)	4.5
Superpave Gyrations	35
Fine Aggregate Angularity (Min.)	40.0
Percent Crush (Min. %)	50.0
Aggregate Wear Index (AWI)	220
Sieve Size	**Total % Passing**
1/2 inch	100
3/8 inch	99-100
No. 4	75-95
No. 8	55-75
No.30	25-45
No. 200	3-8

d. **Asphalt Binder**
Liquid Asphalt binder shall be a Performance Graded (PG) binder as specified in the bid documents and/or approved by the Road Commission.

e. **Air Voids**
Design air voids will be 4.0% and shall be regressed to 3.0% in production by the addition of virgin liquid asphalt (4E1 and 5E1).

f. **Recycled Asphalt Materials**
Recycled Asphalt Pavement (RAP) is allowed in the HMA mixtures subject to the following requirements. The method for determining the binder grade in HMA mixtures incorporating RAP is divided into two categories designated Tier 1 and Tier 2. Each tier has a range of percentages that represent the contribution of the RAP toward total binder replacement. Binder replacement will be determined by weight. ***The use of Reclaimed Asphalt Pavement (RAP) shall be limited to Tier 1 (0% to 17%) RAP binder by weight of the total binder in the Ultra-Thin mixture, which will also use a PG 58-34 binder.***

Recycle Asphalt Shingles (RAS) are <u>not</u> allowed in the HMA mixture.

Tier 1 - 0.0% to 17.0% RAP binder by weight of the total binder in the mixture
No binder grade adjustment is required to compensate for the stiffness of the asphalt binder in the RAP.

Tier 2- 18.0% to 27.0% RAP binder by weight of the total binder in the mixture
The required asphalt binder grade must be at least one grade lower for the low temperature than the design binder grade required for the specific project mixture. For example, if the design binder grade for the mixture type is 58-28, the required grade for the binder in the HMA mixture containing >17.0% RAP would need to be a 58-34.

g. **Construction**
After the Job Mix Formula is established, the aggregate gradation of the HMA mixture furnished for the work shall be maintained within the Range 1 uniformity tolerance limits permitted for the job-mix-formula specified in Table 1. However, if deviations are predominantly either below or above the job-mix-formula, the Engineer may order alterations in the plant to bring the mixture to the job-mix-formula. If

two consecutive aggregate gradations on one sieve as determined by the field tests are outside Range 1 but within Range 2 tolerance limits, the Contractor shall suspend all operations.
Contract time will continue during these times when the plant is down. Before resuming any production, the Contractor shall propose, for the Engineer's approval, all necessary alterations to the materials or plant so that the job-mix-formula can be maintained. The Engineer, after evaluating for effects on AWI and mix design, properties, will approve or disapprove such alterations.

Random liquid asphalt binder samples will be taken by the Engineer or Consultant. The Engineer reserves the right to test any or all samples taken.

The crushed particle content of the aggregate used in the HMA mixture shall not be more than 10 percentage points above or below the crushed particle content used in the job-mix-formula nor less than the minimum specified for the aggregate in the project documents.

Quality assurance and acceptance testing will be as follows:

1. **Asphalt Mixture Sampling**
   Acceptance sampling and testing will be performed by the Engineer using the using the sampling method and testing option selected by the Engineer. Each day of production, random samples will be obtained for each mix type. Acceptance testing will be performed at a frequency specified by the Engineer.

   For each given day of production, if the daily mix tonnage per HMA mix type is under 500 tons, the Engineer reserves the right to test one sample and obtain a second sample for future testing if necessary. If the daily mix tonnage per HMA mix type is over 500 tons, The Engineer reserves the right to test one sample. If the first sample meets the Range 1 tolerances in Table 1 and Table 2, the Engineer can obtain a second sample and perform any of the following actions:

   a) Perform Full Quality Assurance testing
   b) Perform Volumetric Testing Only (Ignition or Extraction AC/Gmm, Air Voids, VMA)
   c) Retain custody of the sample for future testing if necessary

2. **Asphalt Binder Sampling**
   The Contractor shall obtain the asphalt binder sample, correctly label the sample container, and complete a Sample Identification (Bituminous Material Form 1923B). The form must be filled out correctly and completely, and signed before the sample is given to the Engineer. The daily asphalt binder sample must be taken from a sampling spigot located on the pipeline supplying asphalt binder to the plant, in a position between the asphalt binder pump and the point where the asphalt binder enters the mixture. Personnel safety is critical in selecting the position of the sampling spigot. Give the binder sample and completed Form 1923B to the Engineer.

   Daily Asphalt Binder Samples are to be in 1 pint (16 ounce), slip top, seamless ointment tin. The tin must be at least three quarters full. All containers must be labeled in a legible format with the following information.

   a) Project Name
   b) Binder Grade
   c.) Binder Supplier certificate number
   d) Supplier name, city and state
   e) Date sampled
   f.) Mix Type

The Engineer may request to witness the sampling of the asphalt binder upon visit to the HMA plant. The Engineer will complete the 1923B for the witness sample. The witness sample will be recorded as the daily asphalt binder sample. Any other asphalt binder samples from that same day will be discarded.

The Engineer may request a copy of the MDOT Binder Certification Documents. These copies must be presented to the Engineer when the respective daily binder samples and the 1923B forms are picked up at the plant. The Engineer will review these documents and communicate any problems that may arise.

3. **Mixture Testing**

Mixture samples will be tested to verify gradation, binder content and volumetric properties per Table 1 and Table 2 listed below.

If the Engineer elects not to perform Quality Assurance testing on a given day or a given project, the Contractor is still required to perform testing in accordance with Table 1 and Table 2 below. The Contractor's Quality Control test results shall be sent to the Engineer within 2 working days of each day's productions for a given HMA mixture.

TABLE 1: Quality Assurance / Control Tolerance Limits for HMA Mixtures

	TOP AND LEVELING COURSE	
PARAMETER	**Action Limits (Range 1)**	**Suspension Limits (Range 2)**
% Passing the #8 and Larger Sieves	+/- 5.0%	+/- 8.0%
% Passing #30 Sieve	+/- 4.0%	+/- 6.0%
% Passing #200 Sieve	+/- 1.0%	+/- 2.0%

TABLE 2: Quality Assurance / Control Testing Tolerances (±) from the JMF or Target Values

Parameter	**Double Tests per Lot (c)**	**Lot Average**
Binder Content (a)	0.30% (a)	0.50% (a)
Maximum Specific Gravity (Gmm)	0.013	0.020
Voids in Mineral Aggregate VMA (a,b)	0.75% (a, b)	0.80%
Air Voids (c)	0.60%	0.090%
Fines to Effective Asphalt Ratio	0.65-1.20	0.60-1.25
a) Refer to minimum parameters in Table A of this special provision. B) These given limits are (+/-) from given targets in Table A of this special provision. c) Limits are (+/-) from JMF/Target Value listed in Section e. of this special provision.		

4. **Density**

Pavement density will be measured by the Engineer, with a Nuclear Density Gauge, using the G_{MM} from the JMF for the density control target. The in-place density of the HMA mixture shall be at least 92.0% of the density control target. In place density will be calculated by averaging four QA density tests locations. Tests will not be taken within 12 inches of the pavement edges or joints.

h. **Rejected Mixtures**

1. **Gradation**

Action Limits - A range of values established in Table 1 - Uniformity Tolerance Limits for HMA Mixtures that, if exceeded on two consecutive tests, Contractor is required to take corrective action to bring the mixture produced onto conformance with the specifications.

Suspension Limits – Range of values established in Table 1 – Quality Assurance / Control Tolerance Limits for HMA Mixtures that, if exceeded on a single test, Contractor is required to suspend operations and determine, document, and correct the cause before resuming production. Prior to resuming production, the Engineer must be notified of the findings and approve corrective action prior to resuming production.

2. **Asphalt Binder**

If a liquid asphalt binder sample does not meet the required specification, the mix produced from the point of the last liquid asphalt binder sample meeting specification to the failed sample shall be considered defective and shall be replaced at the sole expense of the contractor.

3. **Volumetric Properties**

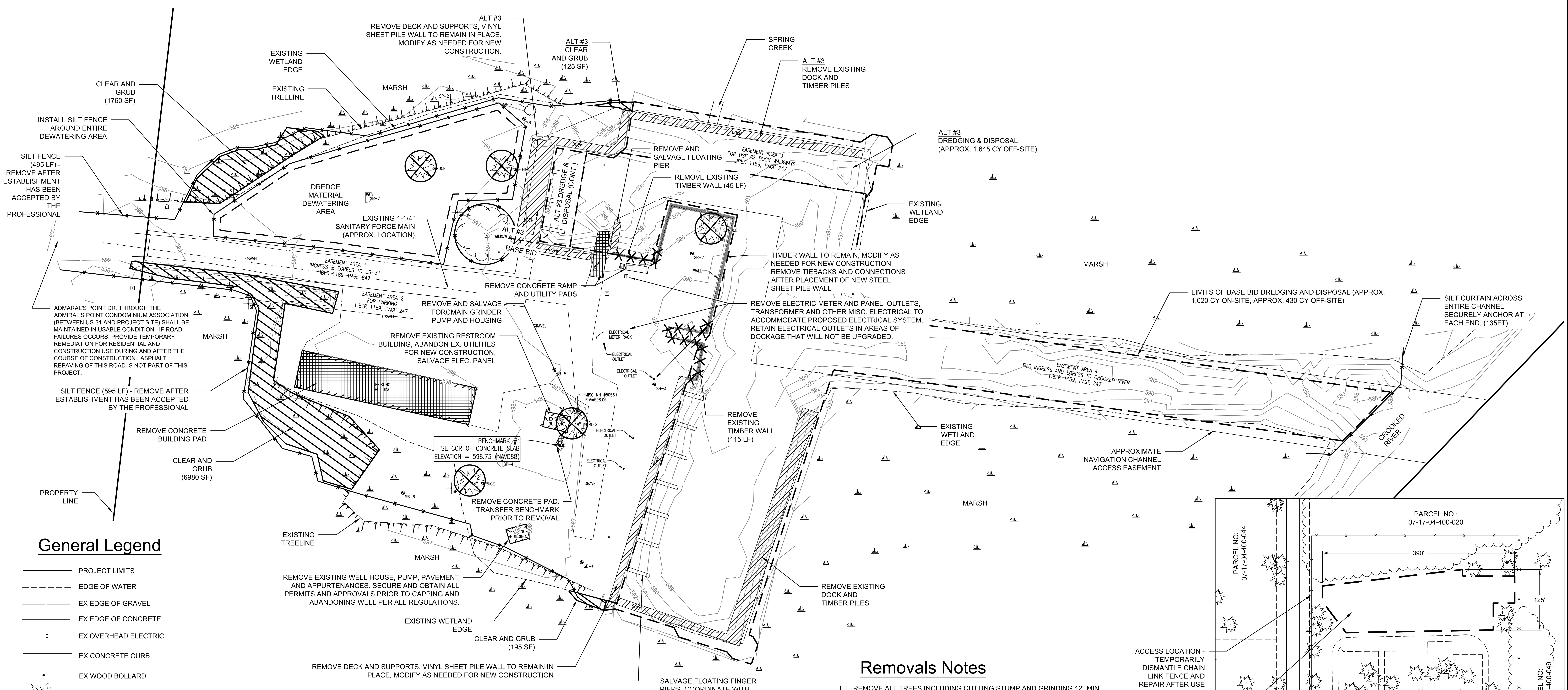
The acceptable tolerances for Binder Content, Gmm, VMA, Air Voids, and Fines to Pbe are listed in Table 2 above. Any HMA Mixture produced outside of these tolerances or any HMA Mixture that does not meet the requirements listed in the sub notes of Table 2 above will be subject to a negative adjustment or rejected. The resulting penalty will be a negative adjustment of 10% to 50% or remove / replace, to be determined by the Engineer.

4. **Pavement Density**

A negative 10% adjustment in the HMA Mixture contract price will be imposed if the pavement density (average of all gauge readings) is less than 92%, but equal to or greater than 91% or if 2 or more readings are less than 91%.

A negative 25% adjustment in the HMA Mixture contract unit price will be imposed if the pavement density (average of all gauge readings) is less than 91% but equal to or greater than 90%; or if 2 or more readings are less than 90%.

If the average density is less than 90%, the Contractor shall remove and replace the pavement at no cost to the Owner.



EXISTING CONDITIONS / REMOVALS PLAN

SCALE: 1"= 40'

General Legend

- PROJECT LIMITS
- EDGE OF WATER
- EX EDGE OF GRAVEL
- EX EDGE OF CONCRETE
- EX OVERHEAD ELECTRIC
- EX CONCRETE CURB
- EX WOOD BOLLARD
- EX CONIFEROUS TREE
- EX DECIDUOUS TREE
- EX VEGETATION / TREELINE
- SOIL BORING LOCATION (SB-1)
- WETLAND SAMPLING LOCATION (SP-1)

Removals Legend

- REMOVE EX. TIMBER WALL
- REMOVE EX. DECK/DOCK
- REMOVE EX CONCRETE
- REMOVE EX ASPHALT
- VEGETATION REMOVAL AS APPROVED BY LANDSCAPE ARCHITECT
- SAVE AND PROTECT EXISTING TREES, INSTALL TEMPORARY PROTECTIVE FENCING AROUND DRIPLINE PERIMETER OF TREE
- REMOVE EXISTING TREE
- CLEAR AND GRUB AREA

BENCHMARK

BM#1 (BENCH MARK)
SOUTHEAST CORNER OF CONCRETE SLAB
EL=598.73 (NAVD 88)

PART OF EAST 1/2
SECTION 3, TOWN 35 NORTH, RANGE 4 WEST
LITTLEFIELD TOWNSHIP, EMMET CO., MI.

Survey Legend

1. BEARINGS ARE RELATED TO PREVIOUS SURVEYS.
2. ALL DIMENSIONS ARE IN FEET AND DECIMALS THEREOF.
3. ELEVATIONS ARE BASED ON NAVD 1988.
4. ELEVATION CONTOUR INTERVAL IS 1 FEET.

● - INDICATES 1/2" RE-ROD FOUND, OR AS NOTED
⦿ - INDICATES CONCRETE MONUMENT FOUND, OR AS NOTED

Dredging Notes

1. APPROXIMATE DREDGE QUANTITIES ARE AS FOLLOWS:
   - BASE BID = 1,020 CY ON-SITE
     430 CY OFF-SITE
   - ALT #3 = 1,645 CY OFF-SITE
2. APPROXIMATE DREDGE QUANTITIES ARE IN-PLACE QUANTITIES OF REQUIRED MATERIAL TO BE DREDGED AND DOES NOT INCLUDE ALLOWABLE 6" OVERDREDGE. THESE QUANTITIES ARE MEANT TO ASSIST THE CONTRACTOR AND ESTABLISH THE GENERAL SCOPE OF THE PROJECT AS INFORMATION ONLY. CONTRACTOR REQUIRED TO ACHIEVE REQUIRED DEPTHS AS INDICATED.
3. CONTRACTOR RESPONSIBLE TO PERFORM AND PROVIDE POST-DREDGE BATHYMETRIC SURVEY INFORMATION FOR REVIEW AND APPROVAL PRIOR TO COMPLETION OF DREDGING ACTIVITIES. FINAL DREDGING APPROVAL WILL NOT BE GIVEN UNTIL PROJECT DEPTHS ARE MET.

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

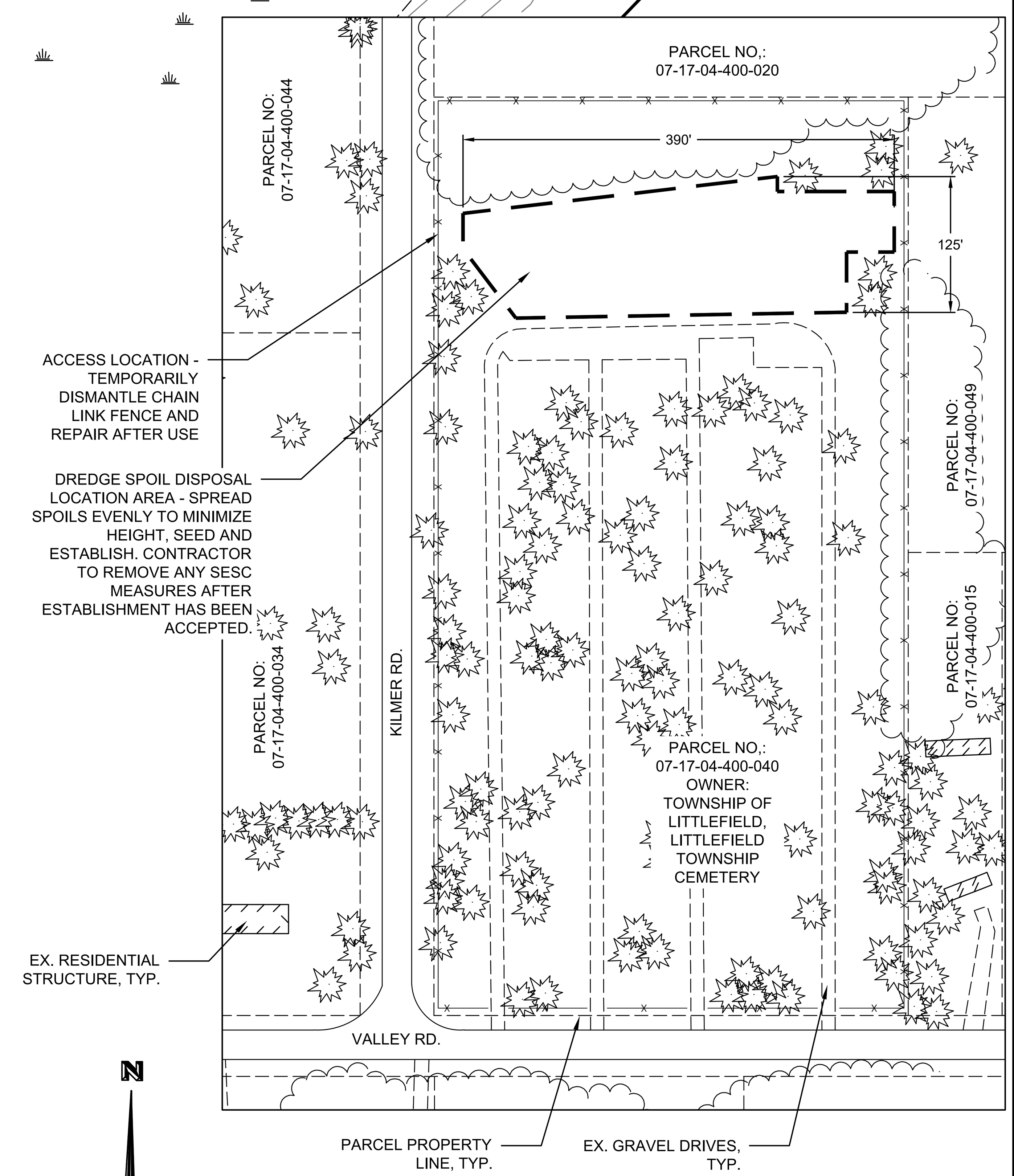
THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "MISS DIG" AT 1 (800) 482-7171 OR 811 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

N

SCALE 1" = 40'
0' 40' 80'

Removals Notes

1. REMOVE ALL TREES INCLUDING CUTTING STUMP AND GRINDING 12" MIN BELOW FINISHED GRADE AS INDICATED ON PLANS.
2. PROTECT ALL TREES AND SHRUBS NOT SCHEDULED FOR REMOVAL AS INDICATED ON PLANS. DO NOT OPERATE EQUIPMENT, STORE, STOCKPILE, OR PARK WITHIN DRIPLINE (DIAMETER OF CANOPY) OF TREES TO MINIMIZE SOIL COMPACTION AND PROTECT ROOT ZONE OF TREE. PROVIDE SILT FENCE BARRIER AROUND DRIP LINE OF TREE WHERE INDICATED ON PLANS. HOLD NECESSARY DISTURBANCE TO A MINIMUM.
3. CONTRACTOR TO PROVIDE FINAL LOCATION OF STOCKPILE, MATERIAL AND MACHINERY STAGING AREAS AND GET APPROVAL FROM LANDSCAPE ARCHITECT AND OWNER PRIOR TO COMMENCING WORK ON-SITE. CONTRACTOR WILL ENSURE ADEQUATE EROSION CONTROL MEASURES NOT LIMITED TO SILT FENCE INSTALLATION.
4. DO NOT OPERATE HEAVY MACHINERY BELOW SHORELINE UNLESS APPROVED BY THE PROFESSIONAL
5. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE TO ITEMS NOT SCHEDULED FOR REMOVAL.
6. CONTRACTOR TO USE DISCRETION FOR RE-USE OF AGGREGATE BASE MATERIAL. IF CONTRACTOR DECIDES TO REUSE EXCAVATED BASE AGGREGATE IN PLACE OF NEW BASE MATERIAL, INSTALLATION WILL BE COMPLETED IN ACCORDANCE WITH PLANS, DETAILS, AND SPECIFICATIONS. BASE MATERIAL WILL MEET OR EXCEED ALL TESTING REQUIREMENTS AS INDICATED IN SECTION 01410 OF THE CONSTRUCTION SPECIFICATIONS.
7. TOP SOIL AND RESEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. REFER TO PLANS FOR SPECIAL AREAS TO RECEIVE NATIVE SEED MIXES OR NO-MOW FESCUES.
8. REMOVAL ITEMS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND ARE SHOWN SCHEMATICALLY. THE CONTRACTOR SHALL WALK THE SITE PRIOR TO BID TO BECOME FAMILIAR WITH THE EXTENT OF REMOVAL ITEMS. THE CONTRACTOR IS RESPONSIBLE FOR ALL REMOVALS NECESSARY TO COMPLETE CONSTRUCTION. QUESTIONS REGARDING ITEMS TO BE REMOVED SHALL BE DIRECTED TO THE LANDSCAPE ARCHITECT.
9. PRIOR TO CONSTRUCTION, REMOVE AND SALVAGE ALL ITEMS AS INDICATED ON PLANS.
10. STRIP AND STOCKPILE TOPSOIL IN A LOCATION APPROVED BY THE ENGINEER AND PROVIDE ALL NECESSARY S.E.S.C. MEASURES TO ELIMINATE EROSION. DO NOT STRIP TOPSOIL FROM AREAS TO BE RESTORED WITH NATIVE SEED EXCEPT IF DISTURBED BY EARTHWORK OR FOR NEW RETENTION AREAS AS INDICATED ON THE PLANS.
11. COORDINATE ELECTRICAL SERVICE, DISTRIBUTION, REMOVALS WITH LOCAL UTILITY COMPANY.



N

DIRECTIONS TO DISPOSAL SITE FROM PROJECT SITE
- TURN SOUTH ON US-31 FROM ADMIRALS POINT DR. CONTINUE FOR .8 MI.
- TURN WEST ON CHICAGO ST. CONTINUE .6 MI.
- TURN WEST ON VALLEY RD. CONTINUE .25 MI.
- TURN NORTH ON KILMER RD., DISPOSAL SITE WILL BE ON YOUR LEFT.

DREDGE SPOIL DISPOSAL LOCATION PLAN

SCALE: 1"= 100'

GoslingCzubak
engineering sciences, inc.
1280 Business Park Dr.
Traverse City, Michigan
231-946-9191 phone
info@goslingczubak.com
www.goslingczubak.com

CIVIL ENGINEERING
SURVEYING
ENVIRONMENTAL SERVICES
GEOTECHNICAL
CONSTRUCTION SERVICES
DRILLING
LANDSCAPE ARCHITECTURE

No.	Date	Revision	By
1	11/12/18	ADDED EXISTING GRADE INFORMATION	KSK

EXISTING CONDITIONS & REMOVALS PLAN
HAY LAKE MARINA PARK
LITTLEFIELD TWP, EMMET CO., MI

P:\2016375002.01\CADD-Data\C3D\2016375002 Admirals Point Marina Sheets.dwg Tab: S1 EXISTING CONDITIONS & REMOVALS PLAN Saved by: kskrogulecki 11/13/2018 4:57 PM Plotted by: Kevin Krogulecki, P.L.A. 11/13/2018 4:59 PM

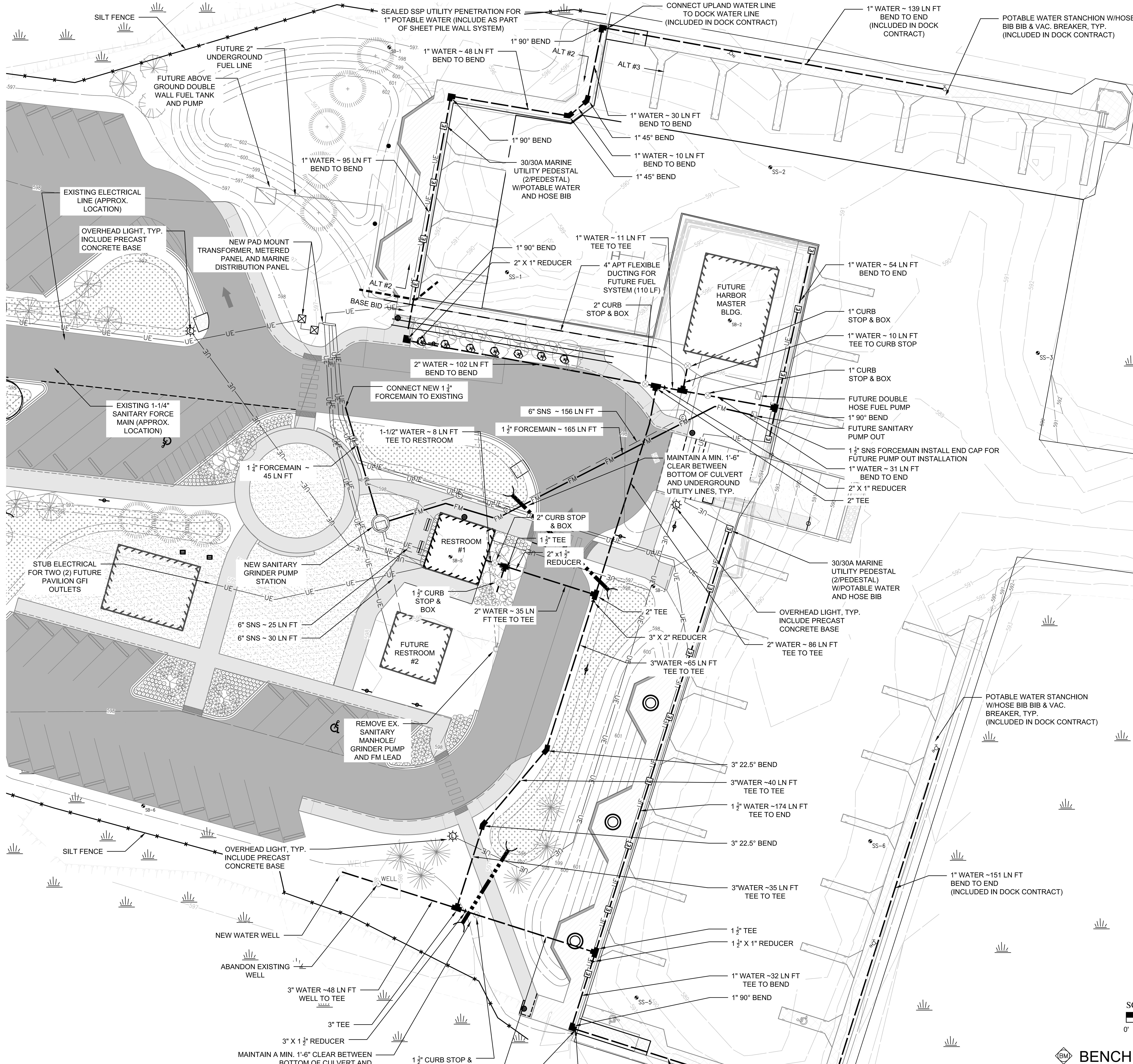
Date Issued:	10/10/18
Date Surveyed:	10/21/14
Designed By:	KDH
Drawn By:	NTS/KSK
Checked By:	KDH
Scale:	AS NOTED

Original sheet size is 24x36

Location:
PART OF THE EAST 1/2
SECTION 3 - T35N, R04W
LITTLEFIELD TOWNSHIP
EMMET COUNTY, MI

Project Number:
2016375002.01

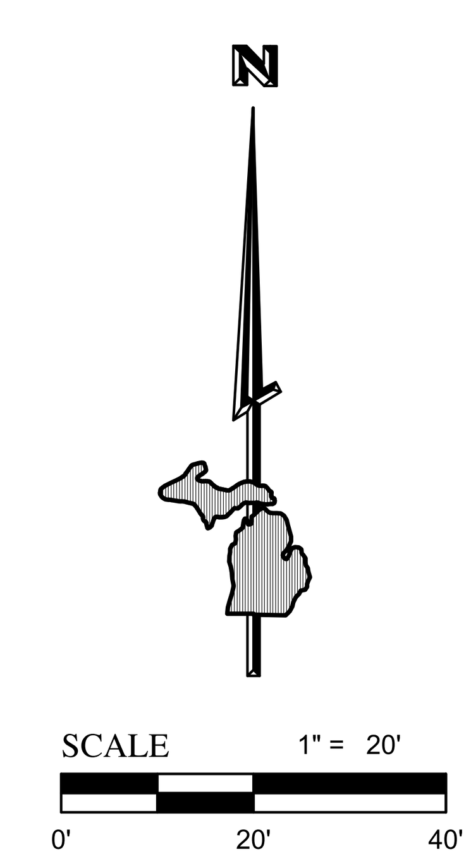
Sheet:
S1



SITE UTILITY PLAN
1" = 20'

Site Utility Notes

1. WATER WELL SHALL BE 5" DIAM.
2. REQUIRED WELL CAPACITY - 36 GPM @ 115.5 TDH AT CONNECTION TO WATER SERVICE PIPING
3. ABANDON EXISTING WELL IN ACCORDANCE WITH ALL LOCAL, STATE AND AGENCY REQUIREMENTS.
4. SITE ELECTRICAL DIAGRAMS, LAYOUTS, COMPONENT SIZING AND MATERIALS INTENDED TO GUIDE CONTRACTOR FOR PLANNING AND PRICING PURPOSES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL APPLICABLE COMPONENTS AND MATERIALS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
5. CONTRACTOR TO PERFORM ALL CHLORINATION AND DISINFECTION PROCEDURES ON THE NEW WATER SYSTEM TO ALL OUTLET LOCATIONS INCLUDING MARINE PEDESTALS.
6. CONTRACTOR TO COORDINATE ALL TESTING AND START-UP OF UTILITIES WITH OTHER CONTRACTORS INCLUDING BUT NOT LIMITED TO BUILDING AND FLOATING DOCK CONTRACTORS.
7. SANITARY SEWER FORCE MAIN
   - PVC FORCE MAIN:
     - DESIGN STANDARD: ASTM D2241
     - PRESSURE RATING: 200 PSI
     - THICKNESS: SDR 21
     - JOINTS: RUBBER RINGS - ASTM 3139
     - PIPE MARKING: ALL PIPE SHALL BE MARKED AS REQUIRED BY ASTM D2241
   - HDPE (HIGH DENSITY POLYETHYLENE) FORCE MAIN:
     - TYPE: DR-17, ASTM 3350 FOR PE 3408, AWWA C906
     - FITTINGS: HDPE ADAPTER PROVIDED BY PIPE MANUFACTURER
   - PVC PIPE FITTINGS:
     - MATERIAL: CAST IRON, CLASS 250 OR DUCTILE IRON, CLASS 350
       - DESIGN STANDARDS: AWWA C110, C153
       - EXTERIOR COATING: BITUMINOUS, AWWA C151, 51-8.1
       - INTERIOR COATING: AWWA C104
       - JOINTS: AWWA C111, MECHANICAL JOINT WITH TRANSITION GASKET, IF REQUIRED.
     - MATERIAL: PVC
       - DESIGN STANDARD: PVC ASTM D1785
       - PRESSURE RATING: SCHEDULE 40
       - JOINTS: RUBBER RINGS - ASTM 3139
8. WATER DISTRIBUTION
   - MINIMUM COVER ON ALL BURIED WATER LINES, 3'-0" UNLESS OTHERWISE NOTED
   - WATER SERVICE LINES SHALL BE PVC, ASTM D2241, SDR21 OR EQUAL
   - WATER VALVES SHALL BE CURB STOPS, MUELLER V-25266 BALL CURB VALVE OR EQUAL
   - CURB BOXES SHALL BE MUELLER IMPROVED EXTENSION TYPE WITH ARCH PATTERN BASE AND OPTIONAL FOOT PIECE OR EQUAL



General Legend

- PROJECT LIMITS
- EDGE OF WATER
- EX EDGE OF GRAVEL
- EX EDGE OF CONCRETE
- EX OVERHEAD ELECTRIC
- EX CONCRETE CURB
- EX WOOD BOLLARD
- PROPOSED EDGE OF ASPHALT
- PROPOSED EDGE OF CONCRETE
- PROPOSED EDGE OF GRAVEL
- PROPOSED BOLLARD
- PROPOSED RAILING
- PROPOSED RIP-RAP / ROCK SPILLWAY
- PROPOSED LIGHT
- 576 EXISTING CONTOUR
- 584 PROPOSED CONTOUR
- PROPOSED SLEEVE
- PROPOSED SANITARY GRAVITY
- Ⓒ PROPOSED SANITARY CLEANOUT
- FM PROPOSED FORCEMAIN
- PROPOSED WATER
- PROPOSED WATER FITTING
- PROPOSED WATER REDUCER
- PROPOSED HOSE BIB W/ VAC BREAKER
- ⊗ PROPOSED CURB STOP AND VALVE
- UE PROPOSED UNDERGROUND ELECTRIC
- E PROPOSED MARINE PEDESTAL
- PROPOSED SILT FENCE

BENCHMARK

BM#1 (BENCH MARK)
SOUTHEAST CORNER OF CONCRETE SLAB
EL=598.73 (NAVD 88)

PART OF EAST 1/2
SECTION 3, TOWN 35 NORTH, RANGE 4 WEST
LITTLEFIELD TOWNSHIP, EMMET CO., MI.

Gosling Czubak
engineering sciences, inc.
1280 Business Park Dr.
Traverse City, Michigan
231-946-9191 phone
info@goslingczubak.com
www.goslingczubak.com

CIVIL ENGINEERING
SURVEYING
ENVIRONMENTAL SERVICES
GEOTECHNICAL
CONSTRUCTION SERVICES
DRILLING
LANDSCAPE ARCHITECTURE

No.	Date	Revision	By
1	11/12/18	SITE UTILITY NOTES UPDATES	KSK

SITE UTILITY PLAN
HAY LAKE MARINA PARK
LITTLEFIELD TWP, EMMET CO., MI

Date Issued:	10/10/18
Date Surveyed:	10/21/14
Designed By:	KDH
Drawn By:	NTS/KSK
Checked By:	KDH
Scale:	AS NOTED

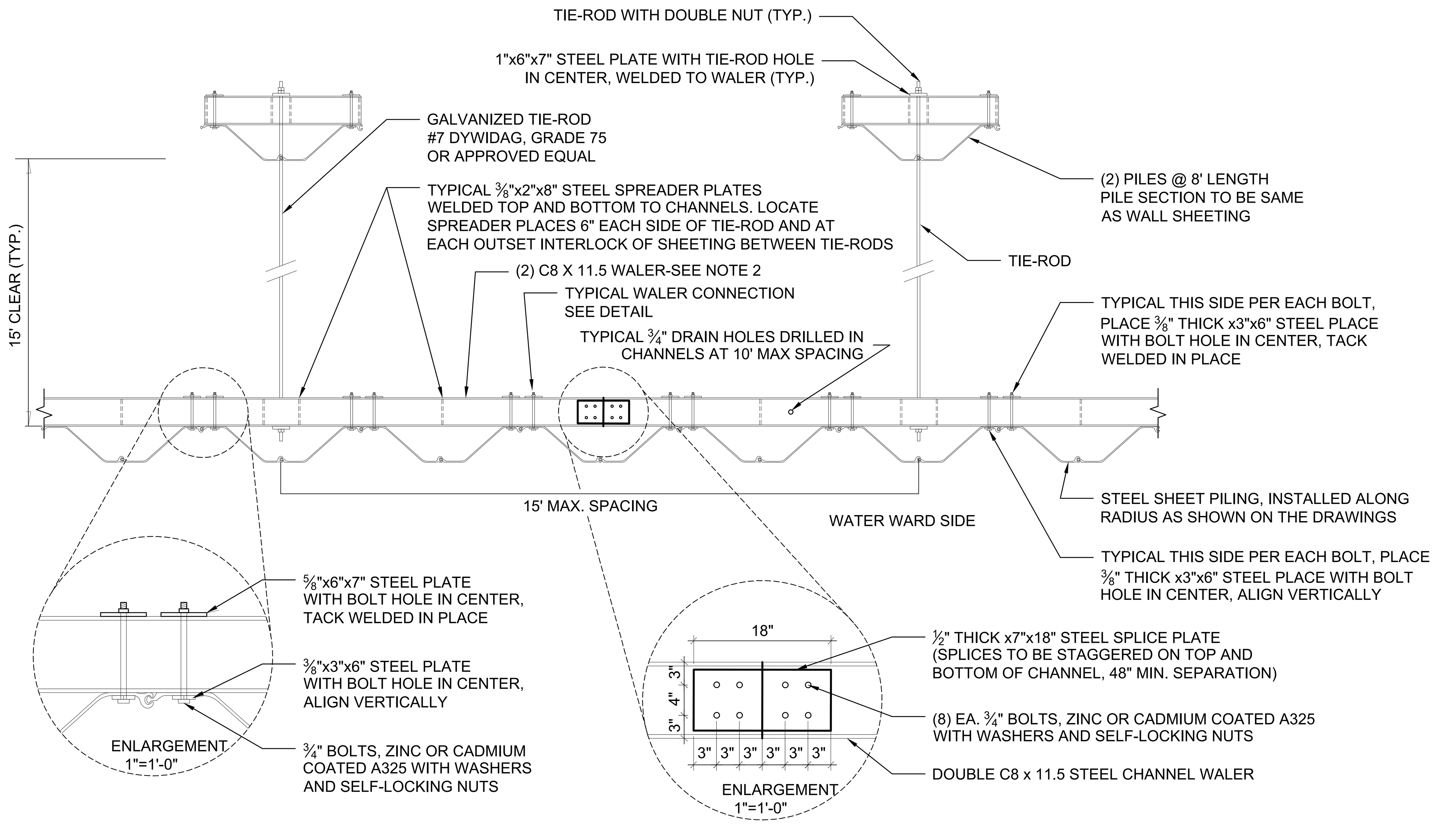
Original sheet size is 24x36

Location:
PART OF THE EAST 1/2
SECTION 3 - T35N, R04W
LITTLEFIELD TOWNSHIP
EMMET COUNTY, MI

Project Number:
2016375002.01

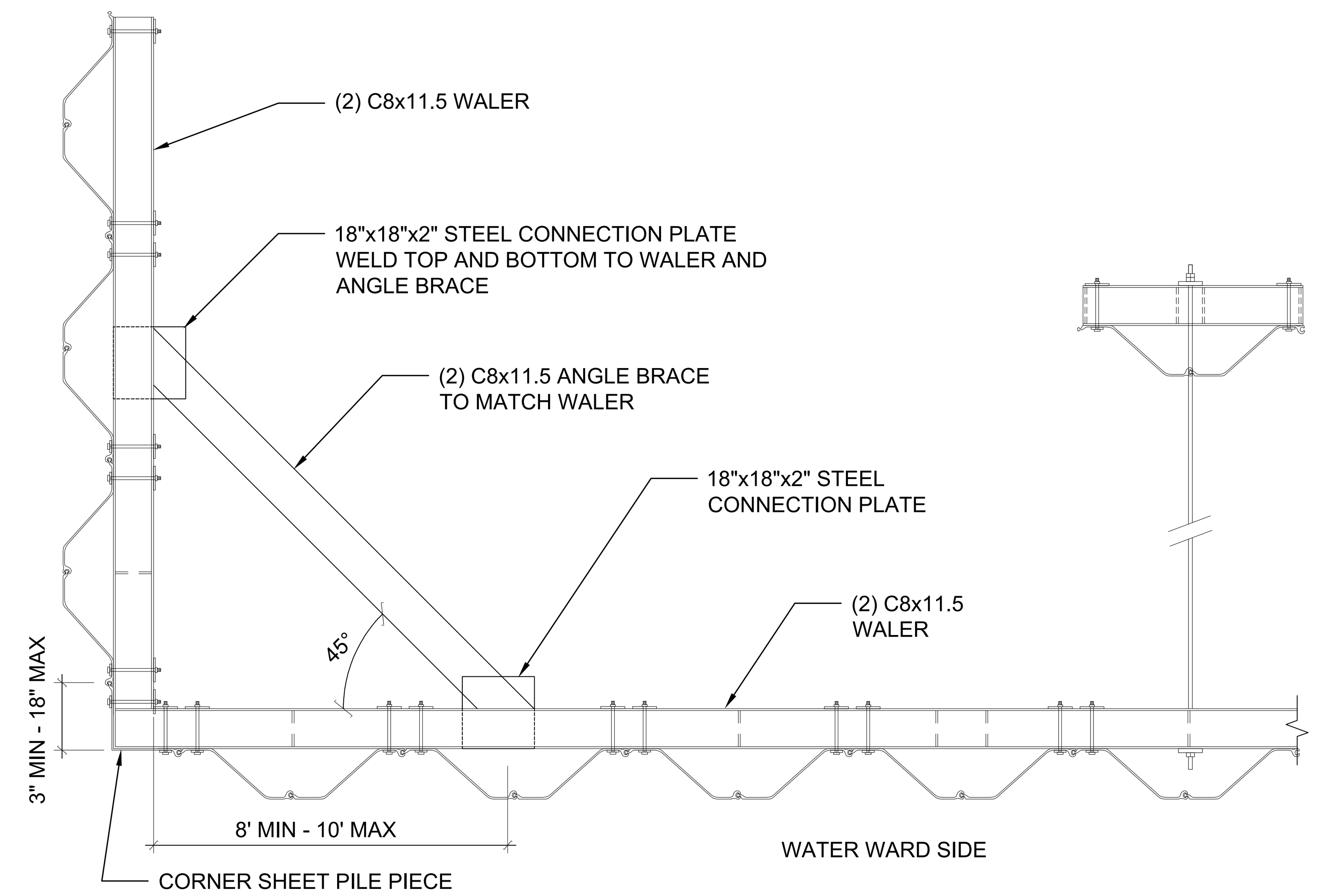
Sheet:
S7

P:\2016375002.01\CADD-Data\C3D\2016375002 Admirals Point Marina Sheets.dwg Tab: S7 SITE UTILITY PLAN Saved by: ksk



TYPICAL ANCHORED SHEEPILE DETAIL

N.T.S.

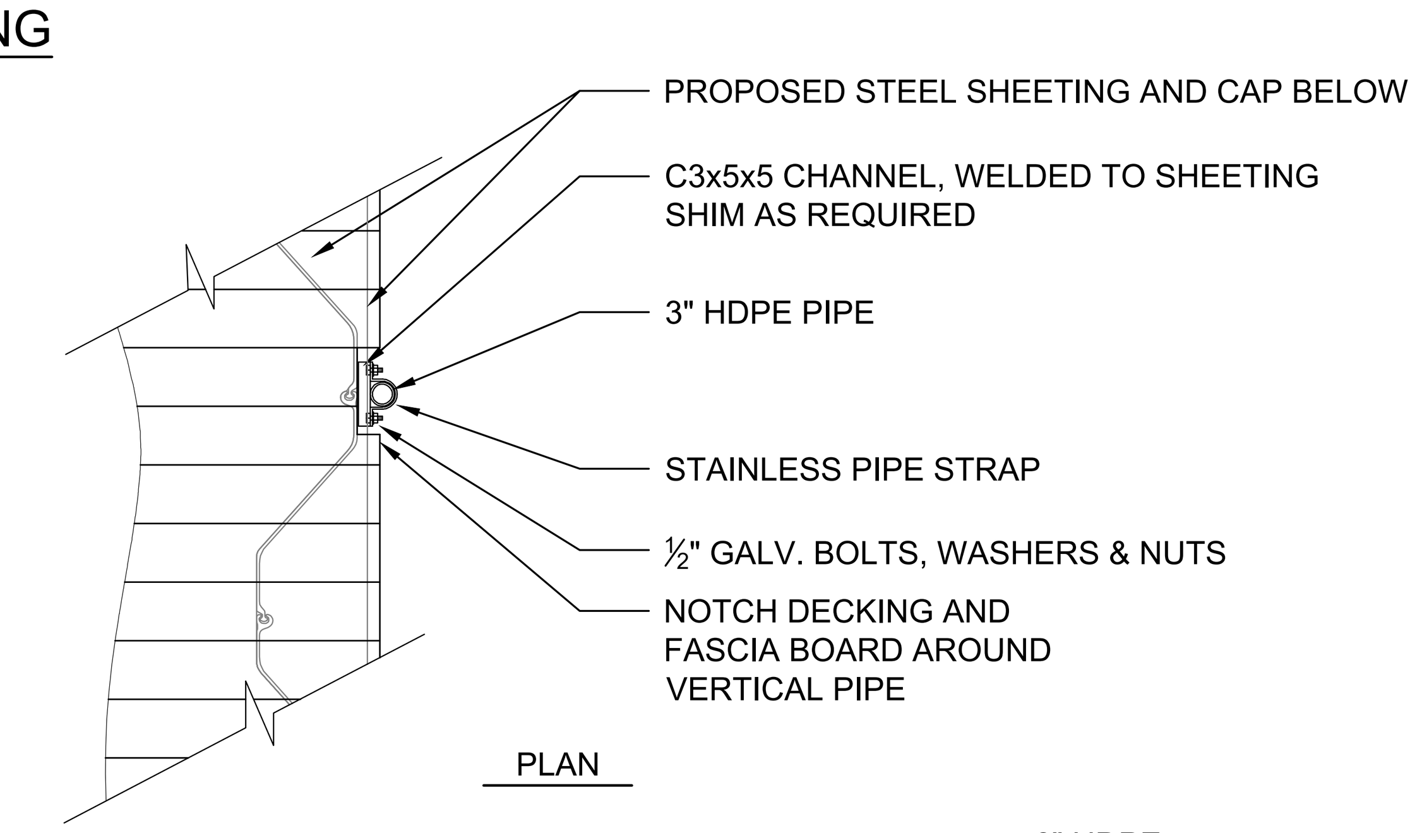


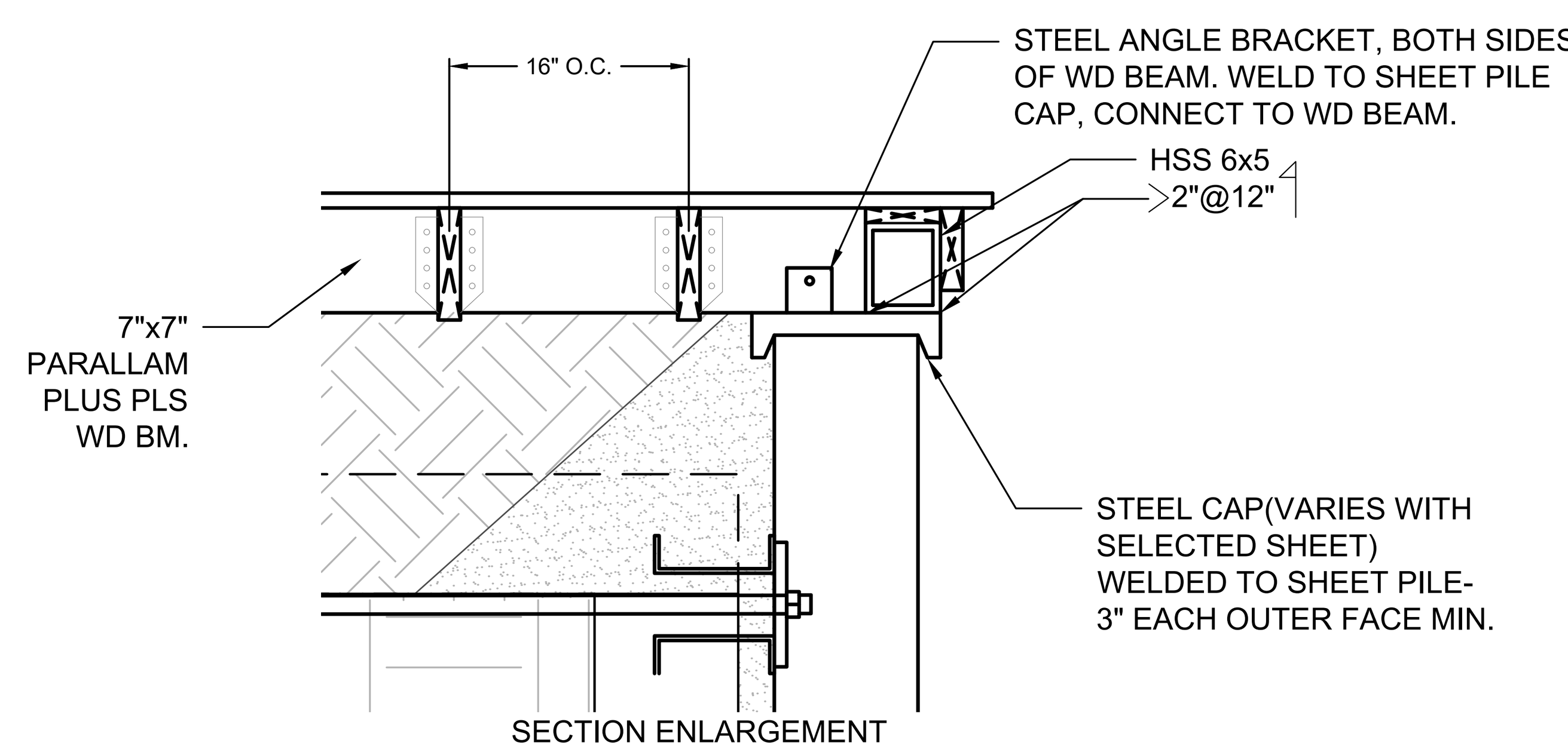
TYPICAL SHEET PILE CORNER BRACING

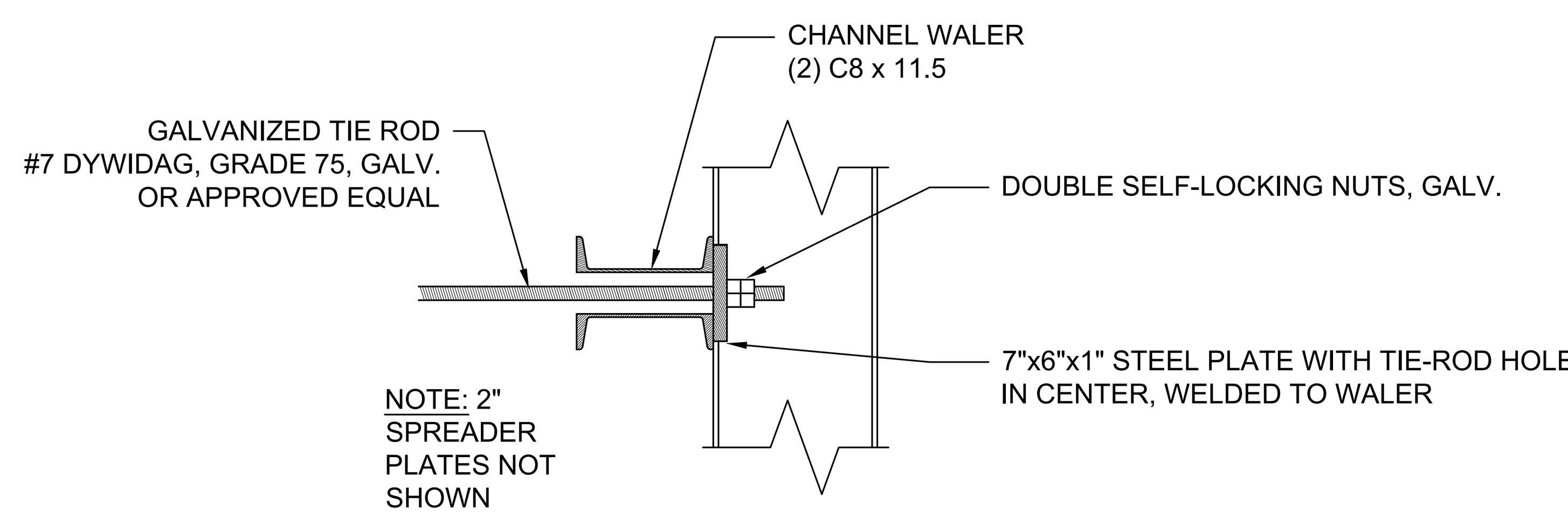
N.T.S.

SHEETING NOTES:

1. SHEETING THICKNESS AND SECTION MODULES TO BE PER SPECIFICATIONS. SIZES AND SPACING TO VARY BASED UPON ALLOWABLE SHEET SECTION SELECTED. CONTRACTOR TO SUBMIT PROPOSED SHEET SECTION AND SHOP DRAWING OF PROPOSED LAYOUT FOR ENGINEER APPROVAL
2. STEEL TOP CAP TO MATCH REQUIRED SHEET PILE ALIGNMENT OR BE SPLICED IN SECTION OF ADEQUATE LENGTHS TO ALLOW FOR REQUIRED ALIGNMENT AND TO NOT EXTEND BEYOND STEEL ANGLE ABOVE
3. WALER TO MATCH REQUIRED SHEET PILE ALIGNMENT OR BE SPLICED IN SECTIONS OF ADEQUATE LENGTHS TO ALLOW FOR REQUIRED ALIGNMENT WITH SPACERS USED AS NEEDED TO ENSURE A TIGHT CONNECTION TO WALL SHEETING
4. ALL EXCAVATION REQUIRED FOR INSTALLATION OF ANCHORED SHEET PILING SYSTEM SHALL BE CONSIDERED INCIDENTAL
5. SHEETING DETAILS TO BE ADJUSTED AS NEEDED BASED UPON FIELD CONDITIONS

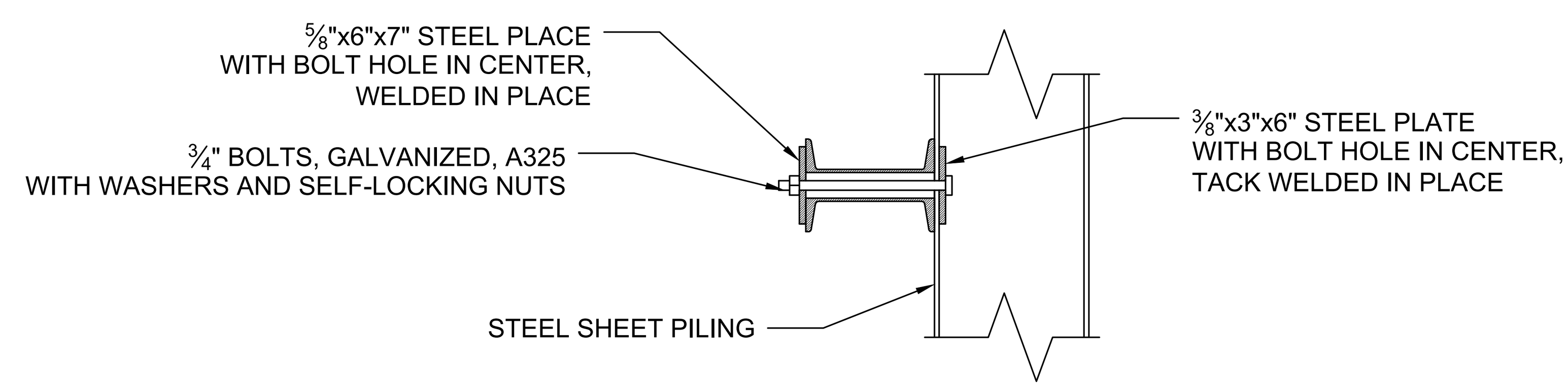






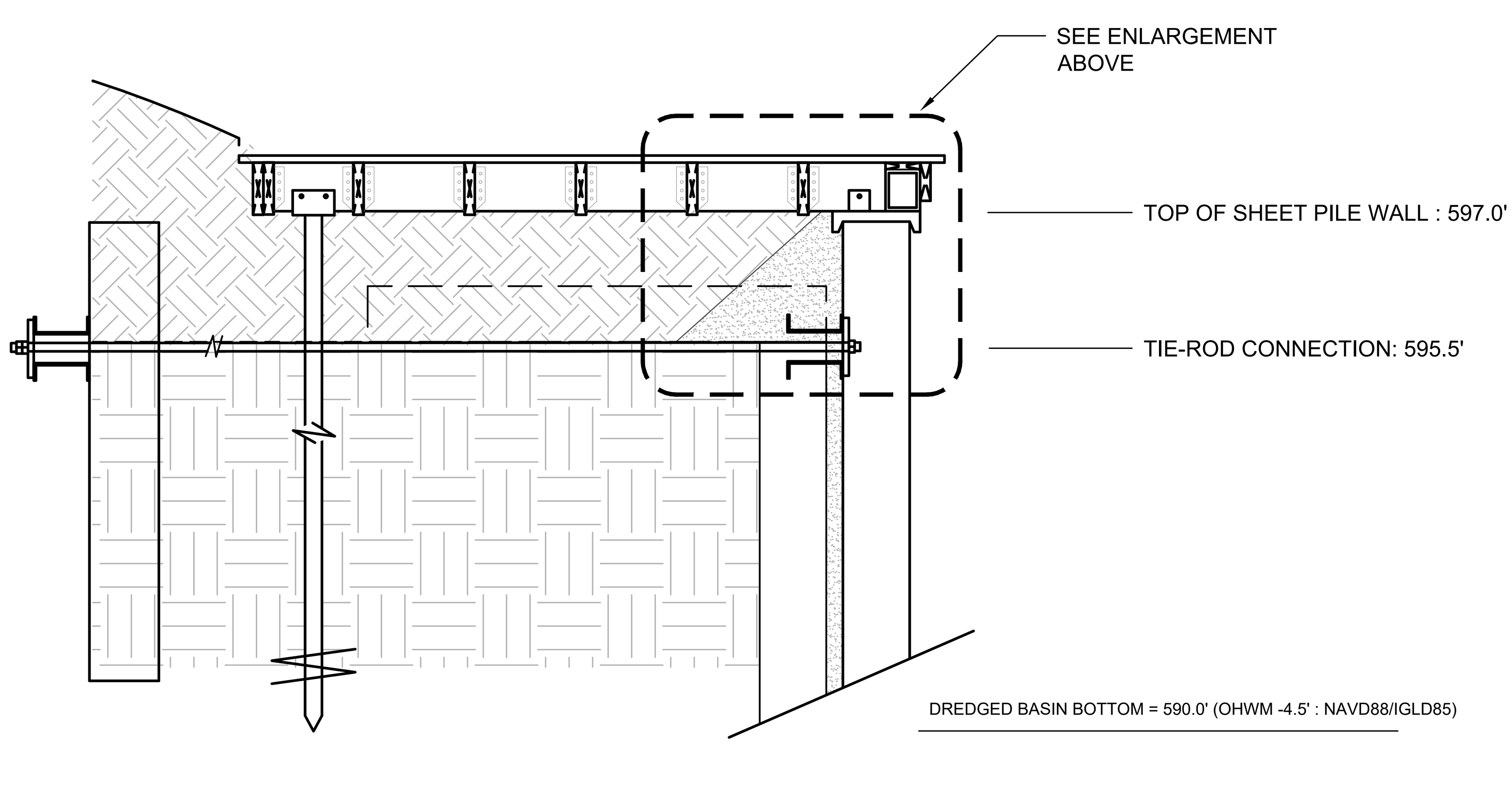
TYPICAL TIE ROD CONNECTION

N.T.S.



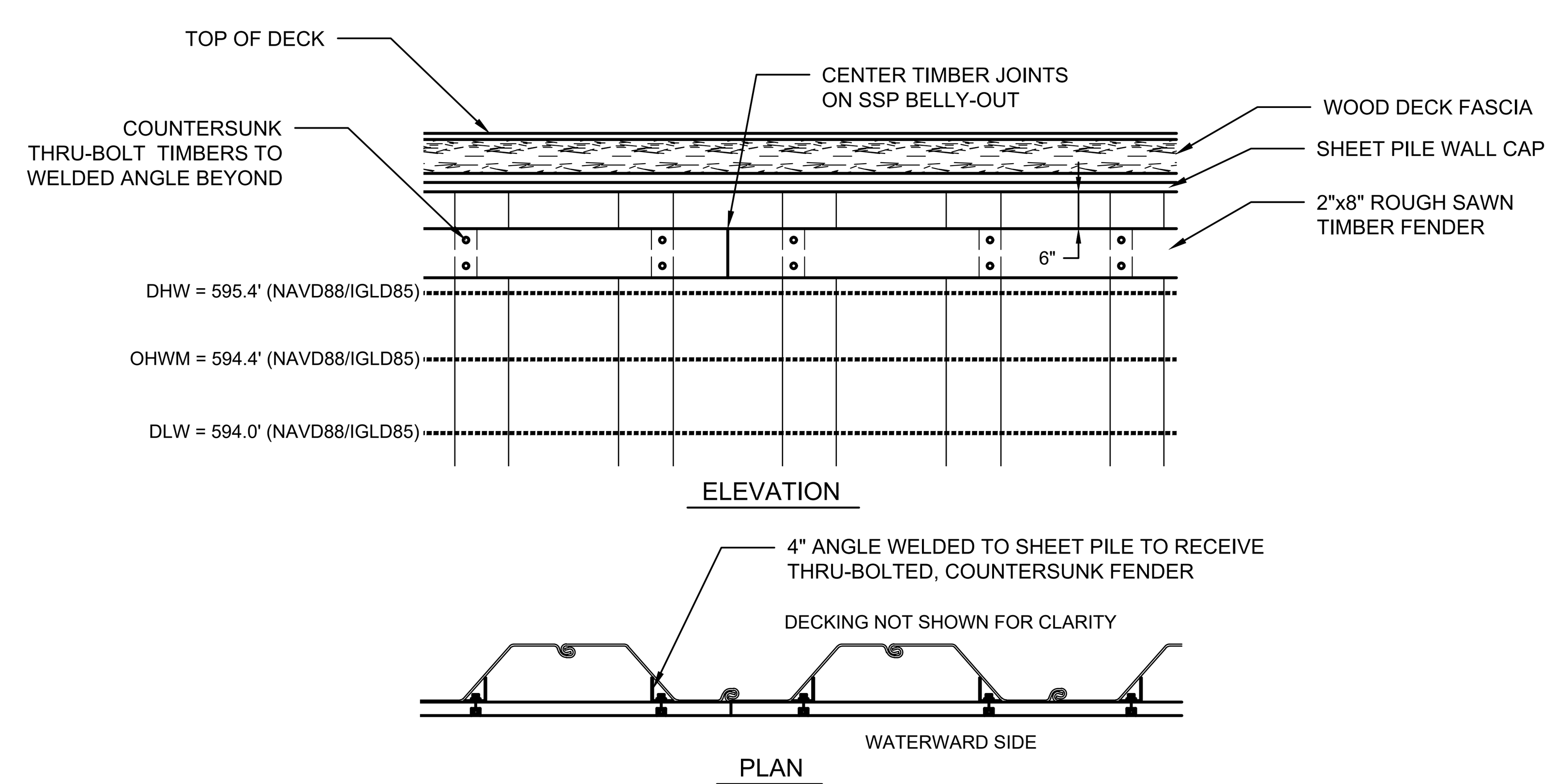
TYPICAL WALER CONNECTION

N.T.S.



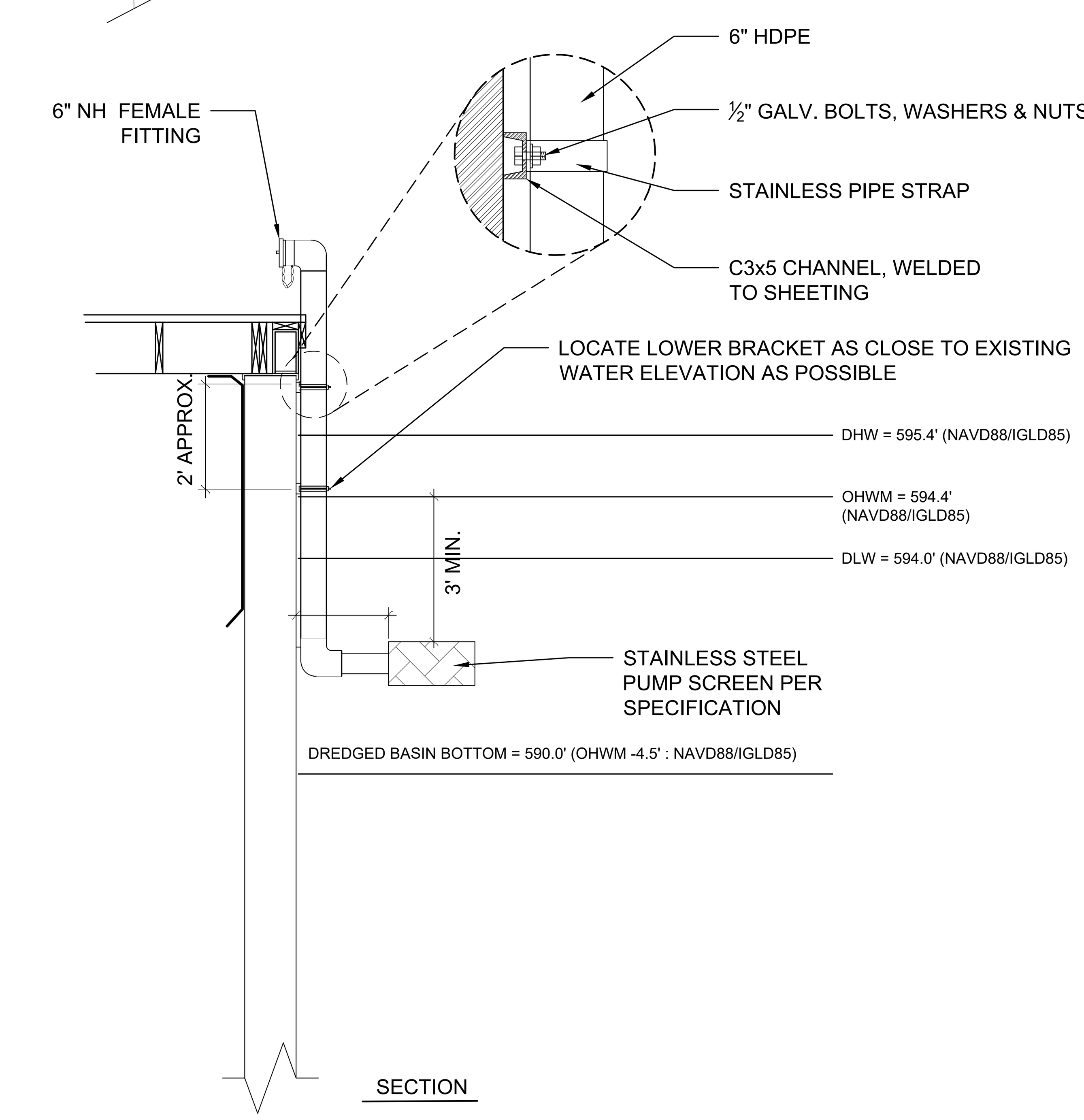
TYPICAL ANCHORED SHEETPILE SECTION

N.T.S.



TIMBER FENDER DETAILS

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



SHEET PILE FIRE INTAKE DETAIL

N.T.S.

GoslingCzubak
engineering sciences, inc.
1280 Business Park Dr.
Traverse City, Michigan
231-946-9191 phone
info@goslingczubak.com
www.goslingczubak.com

CIVIL ENGINEERING
SURVEYING
ENVIRONMENTAL SERVICES
GEOTECHNICAL
CONSTRUCTION SERVICES
DRILLING
LANDSCAPE ARCHITECTURE

No.	Date	Revision	By
1	11/12/18	FIRE INTAKE DETAIL UPDATES	KSK

SHEET PILE WALL DETAILS
HAY LAKE MARINA PARK
LITTLEFIELD TWP, EMMET CO., MI

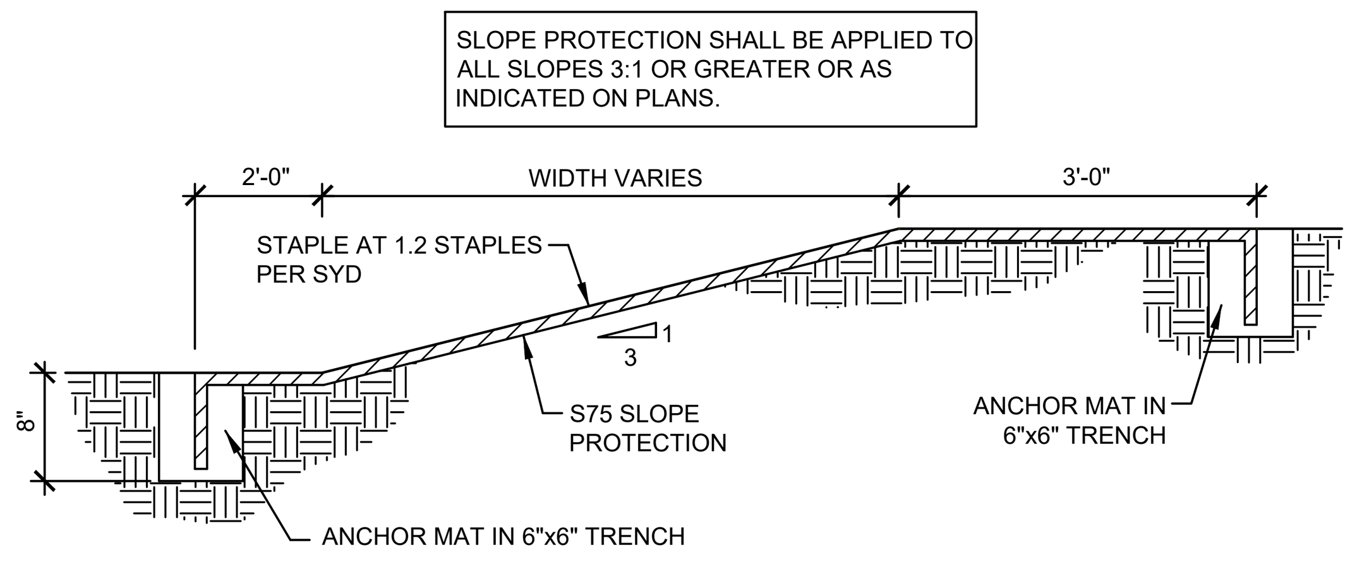
Date Issued:	10/10/18
Date Surveyed:	10/21/14
Designed By:	KDH
Drawn By:	NTS/KSK
Checked By:	KDH
Scale:	AS NOTED

Original sheet size is 24x36

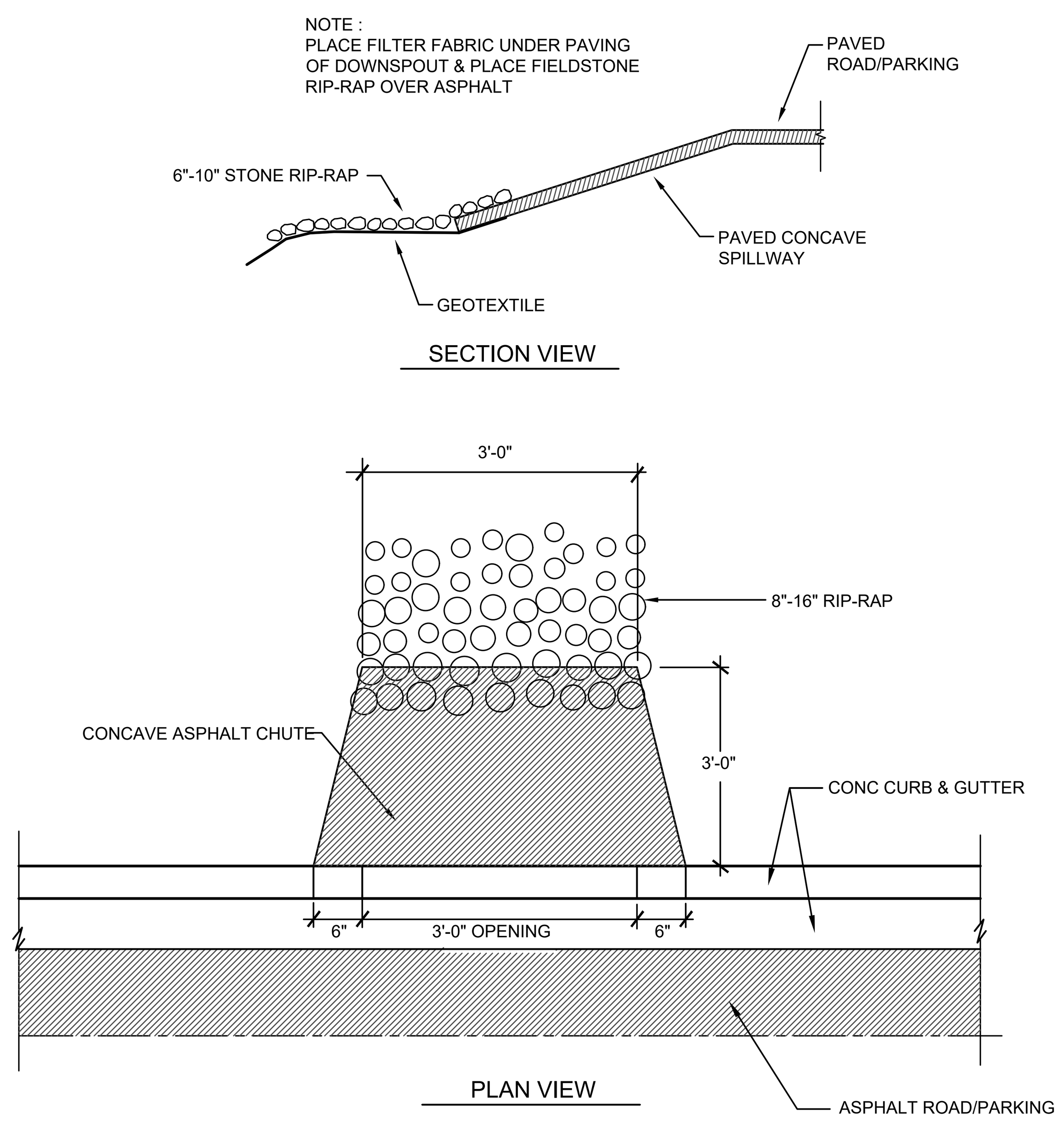
Location:
PART OF THE EAST 1/2
SECTION 3 - T35N, R04W
LITTLEFIELD TOWNSHIP
EMMET COUNTY, MI

Project Number:
2016375002.01

Sheet:
S9



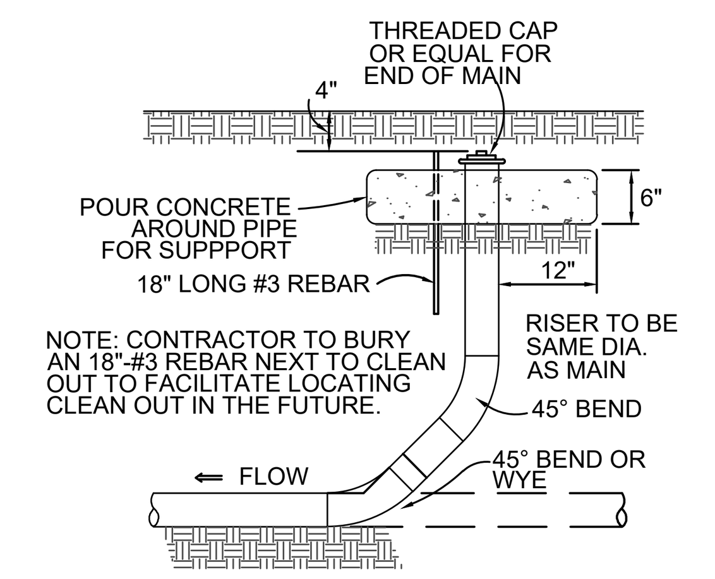
MULCH BLANKET DETAIL
NOT TO SCALE



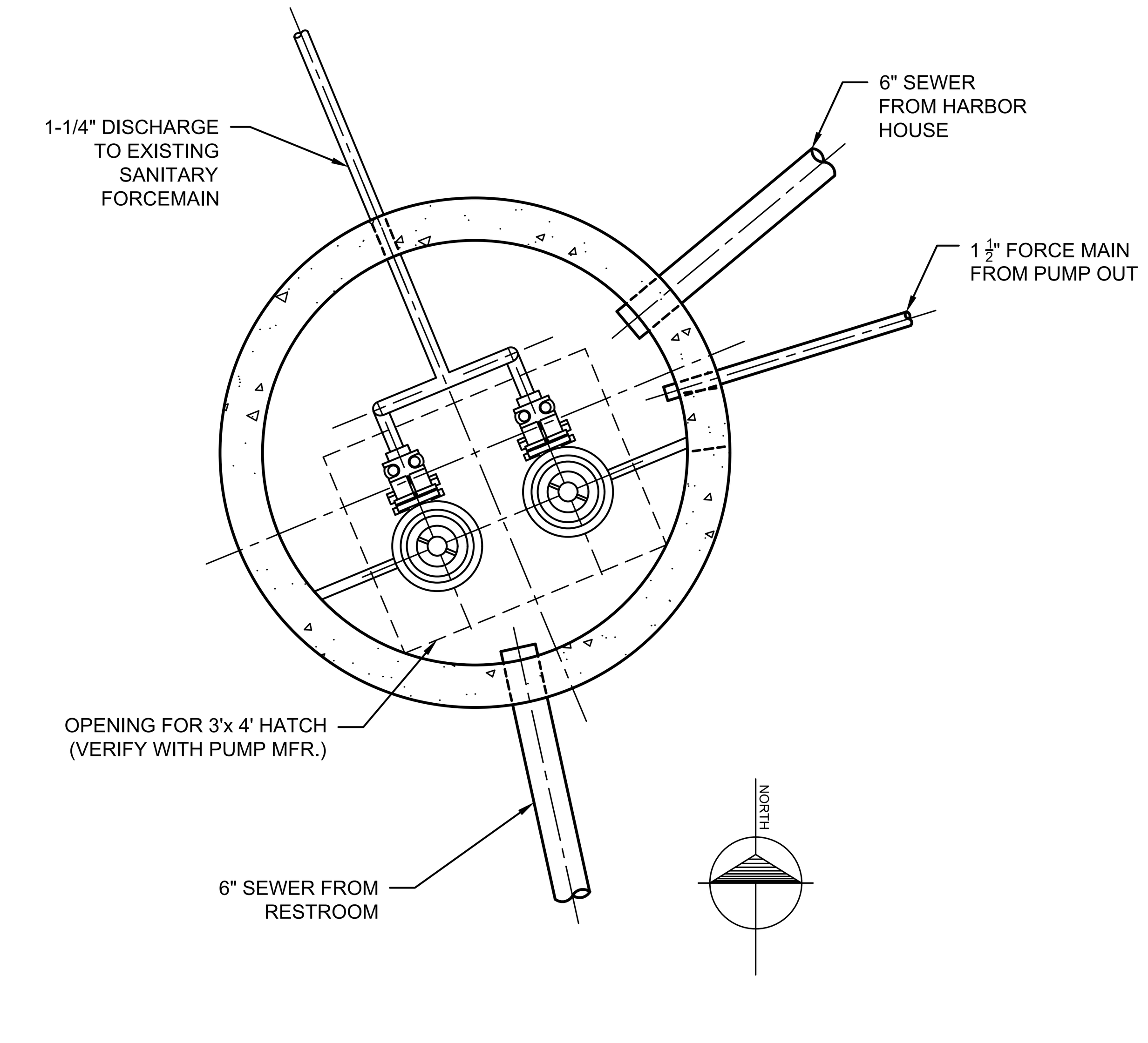
ASPHALT SPILLWAY
NOT TO SCALE

PUMP REQUIREMENTS

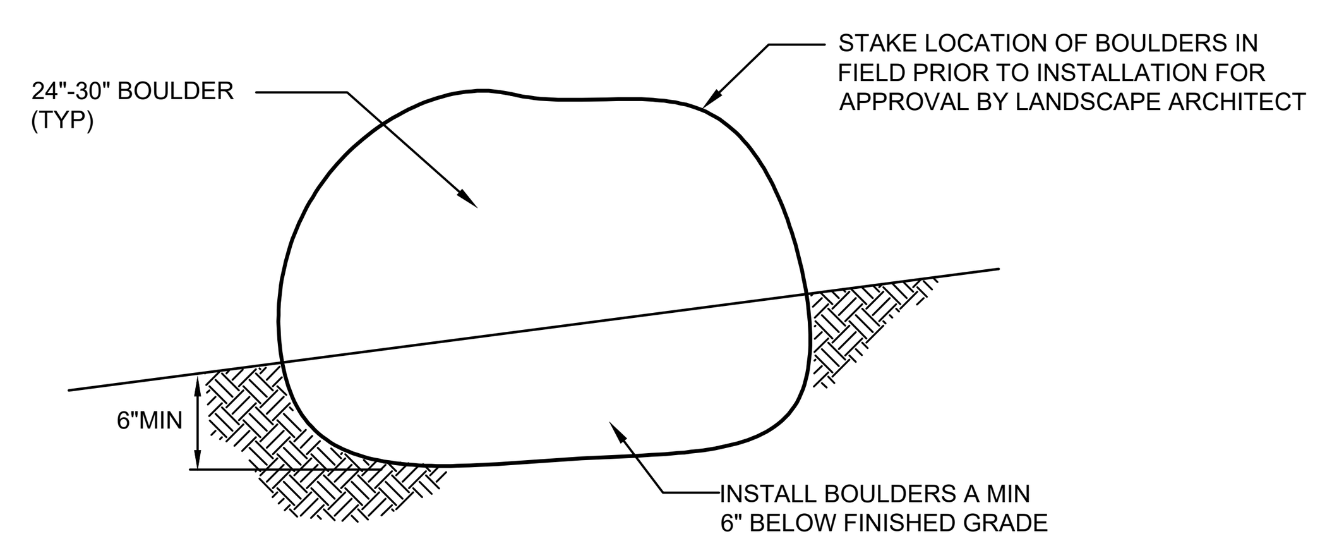
1. TYPE - SUBMERSIBLE GRINDER PUMP
2. MAKE & MODEL - LIBERTY LSGX200, OR EQUAL. 230V, SINGLE PHASE, 60HZ, ½ HP, 3450 RPM
3. OPERATING POINT - 18 GPM @ 126 FT T.D.H.
4. MINIMUM SHUTOFF HEAD - 185'
5. EQUIPMENT TO BE PROVIDED BY PUMP MANUFACTURER:
   - -PUMP (2)
   - -CONTROL PANEL W/ ALARM AND LEVEL CONTROL FLOATS (4 EA) & ANTENNA FOR RADIO TELEMETRY
   - -1 ¼" UNION
   - -1 ¼" BALL VALVE WITH EXTENSION
   - -1 ¼" CHECK VALVE
6. MANUFACTURER SHALL PROVIDE FIELD SERVICES FOR STARTUP AND FIELD TESTING OF PUMP.



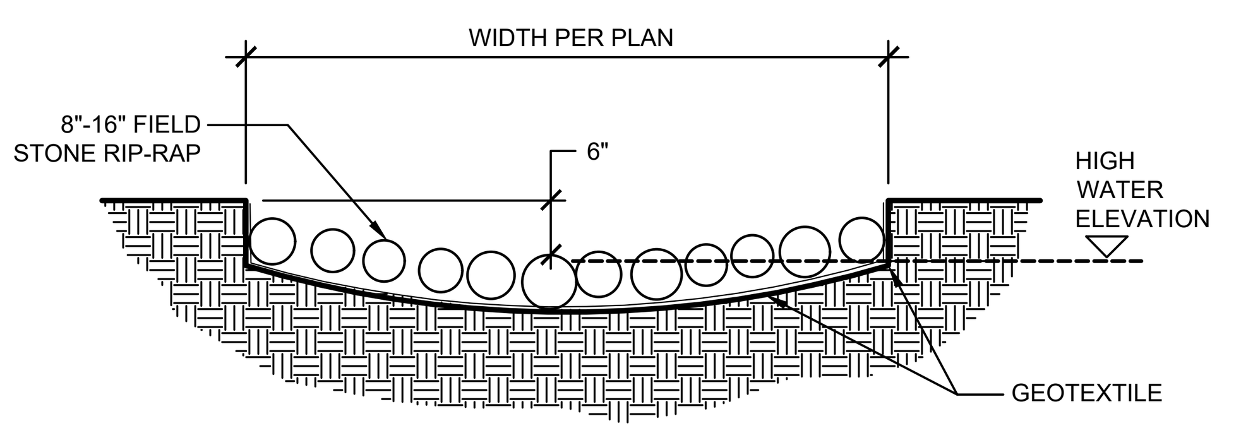
6" OR 8" CLEANOUT DETAIL
NOT TO SCALE



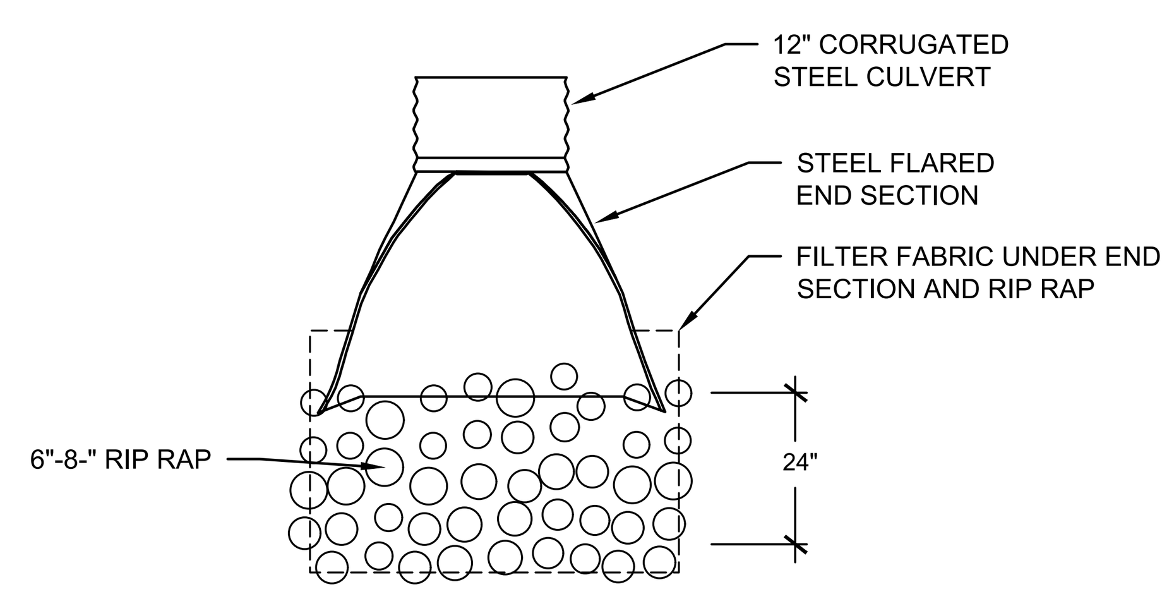
PUMP STATION - PLAN VIEW
SCALE 1" = 2'



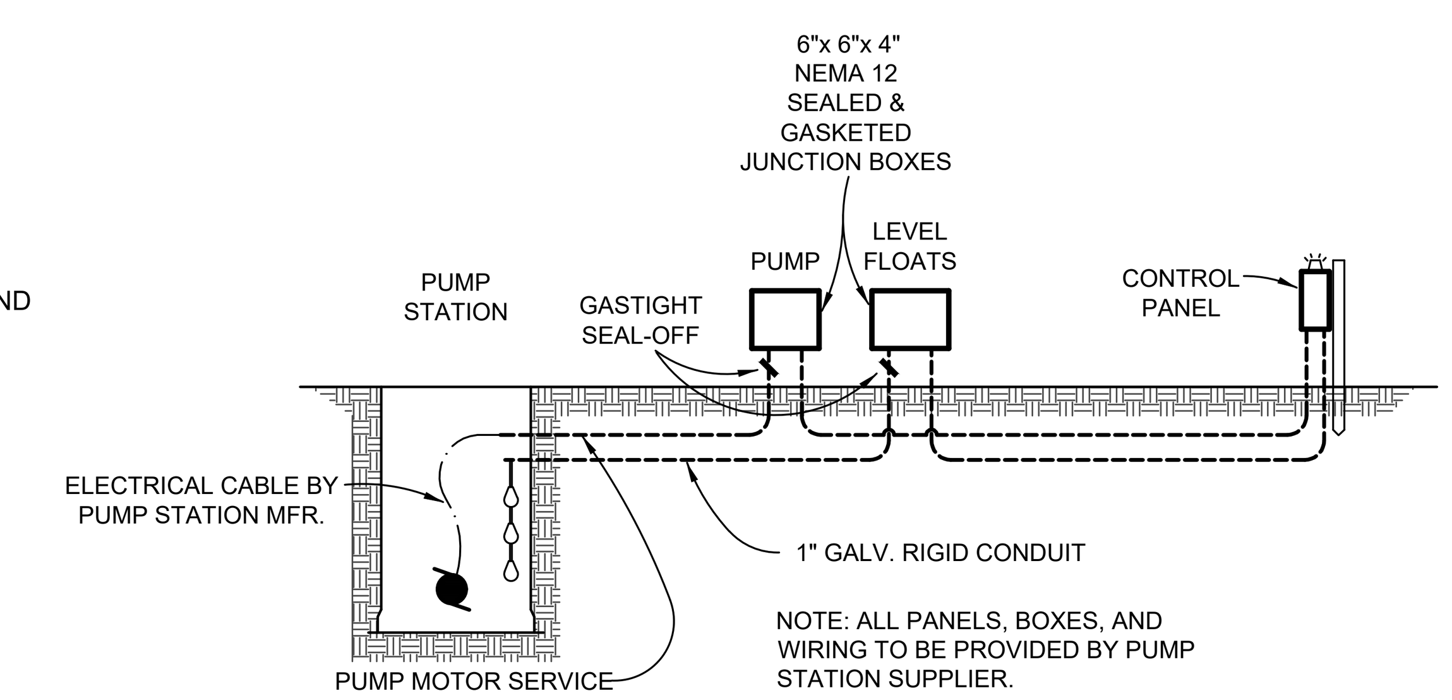
BOULDER INSTALLATION DETAIL
NOT TO SCALE



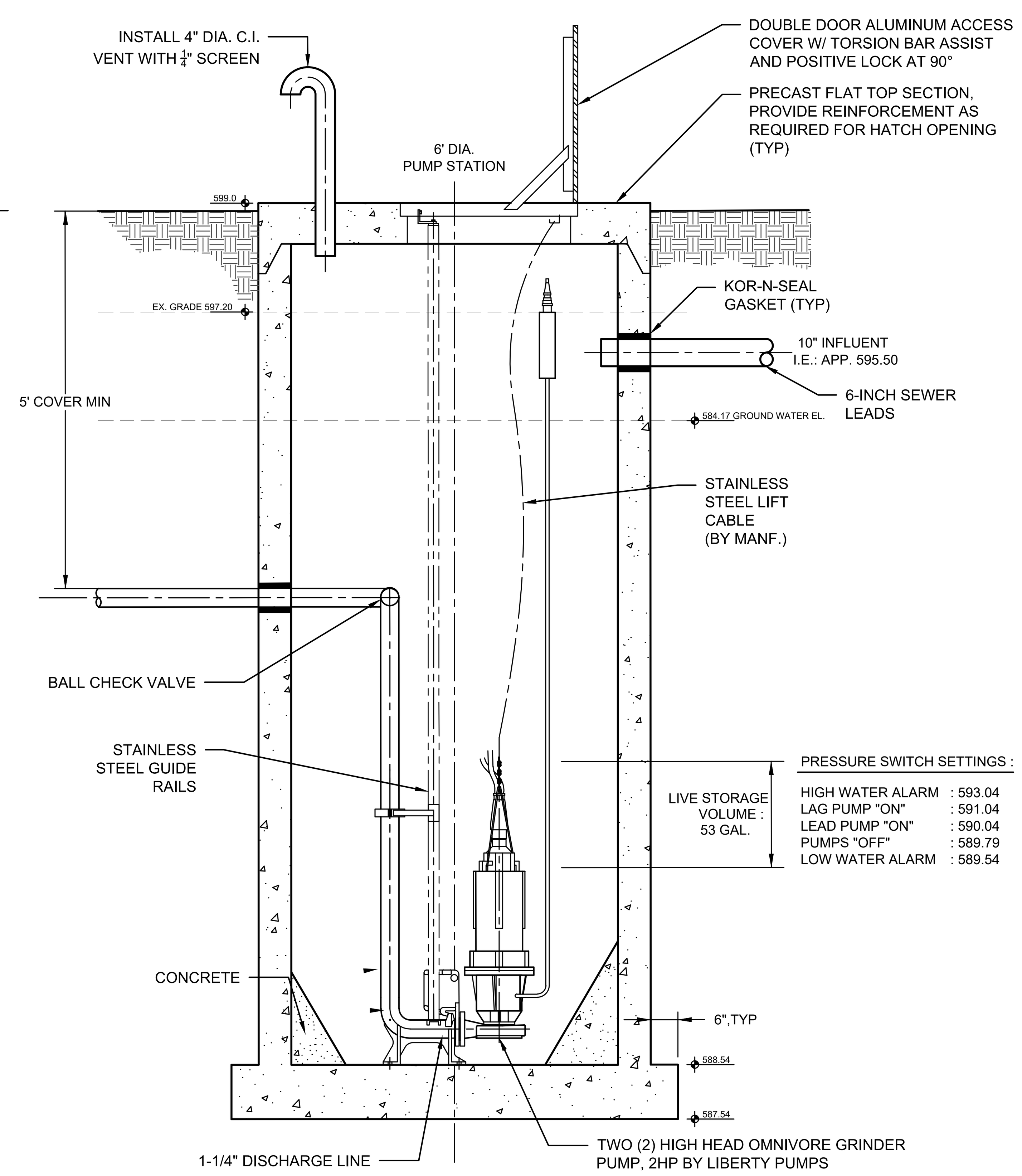
ROCK SPILLWAY
NOT TO SCALE



12" CULVERT END SECTION DETAIL
NOT TO SCALE

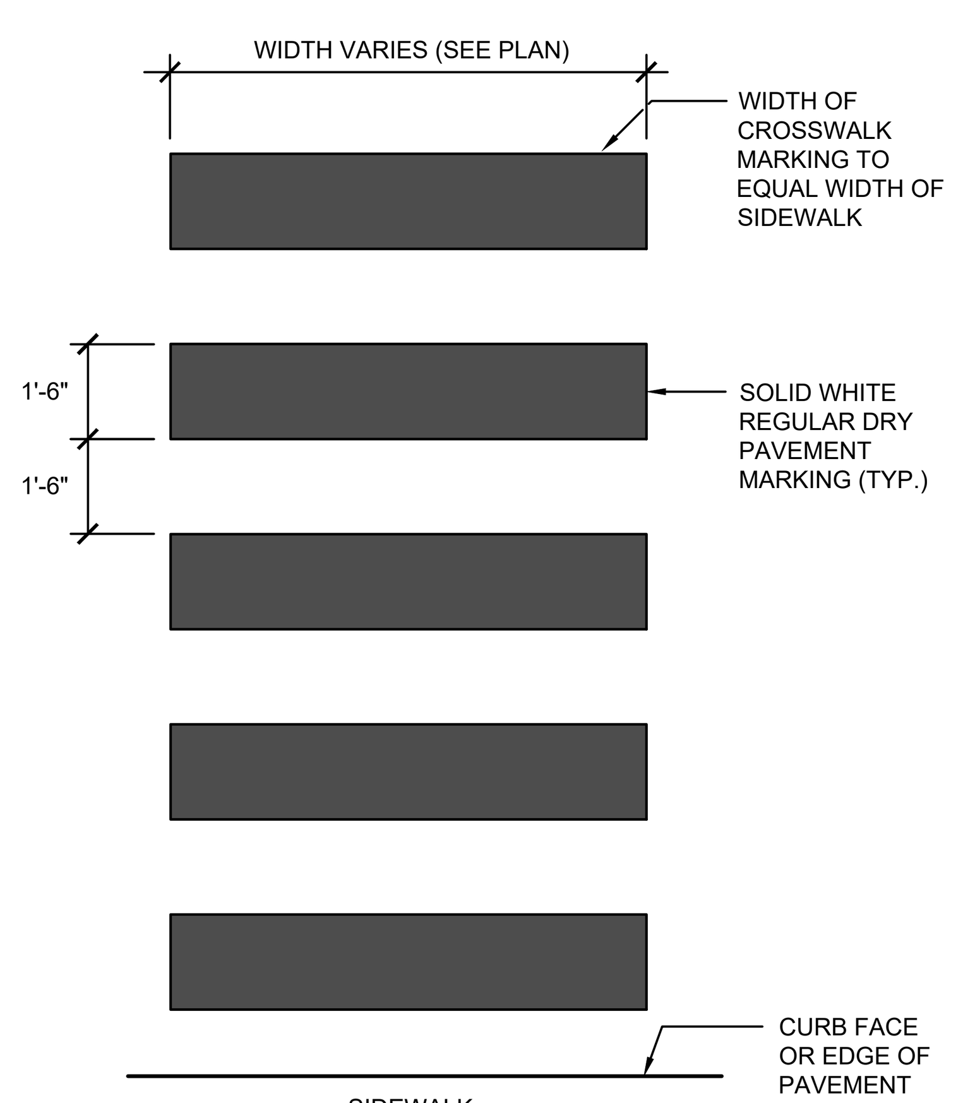


PUMP STATION ELECTRICAL DIAGRAM
NOT TO SCALE

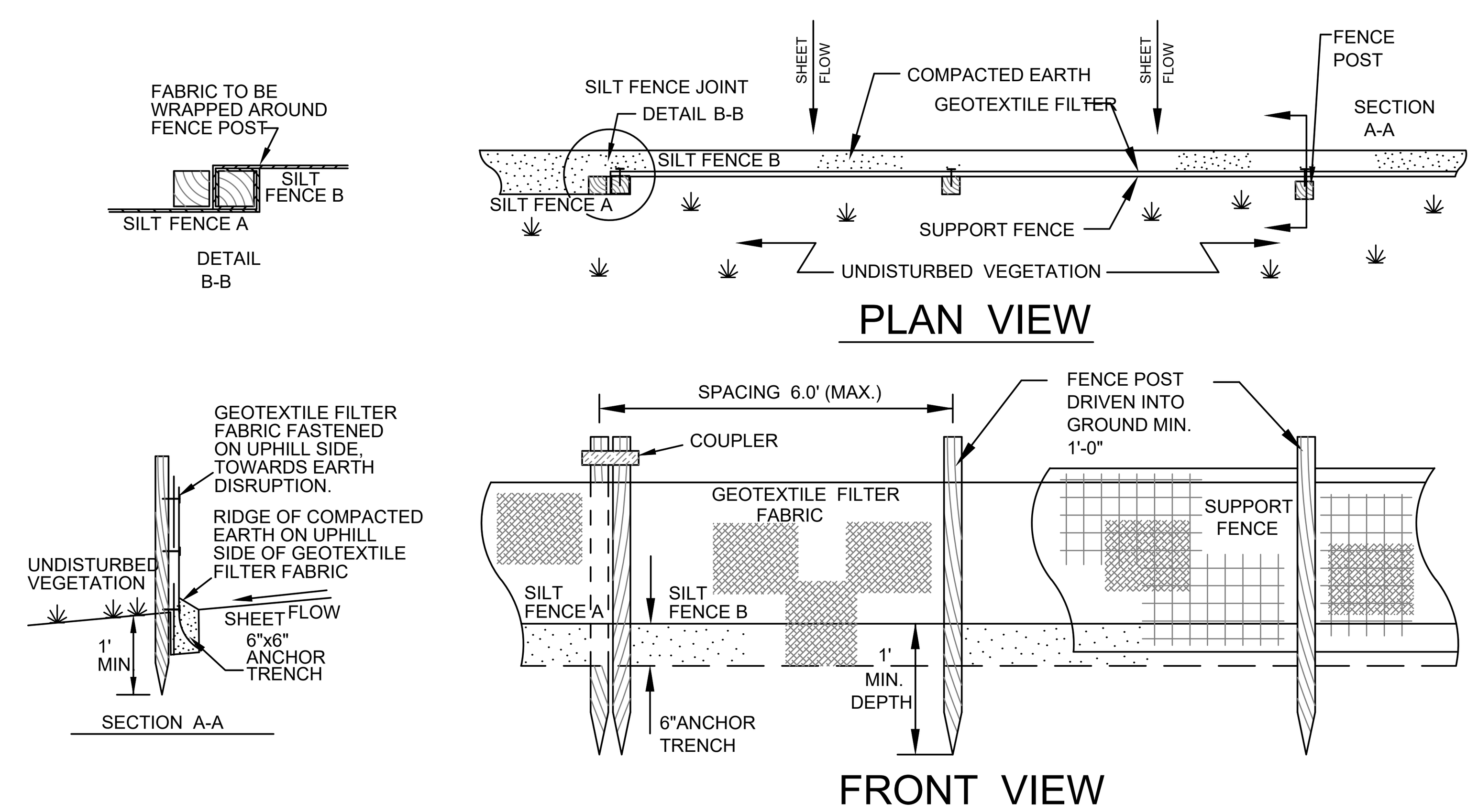


NOTE: STAINLESS STEEL SHALL BE USED FOR ALL FITTINGS, PLATES,ANGLE IRON, FASTENERS, AND CONDUIT INSIDE PUMP CHAMBER.

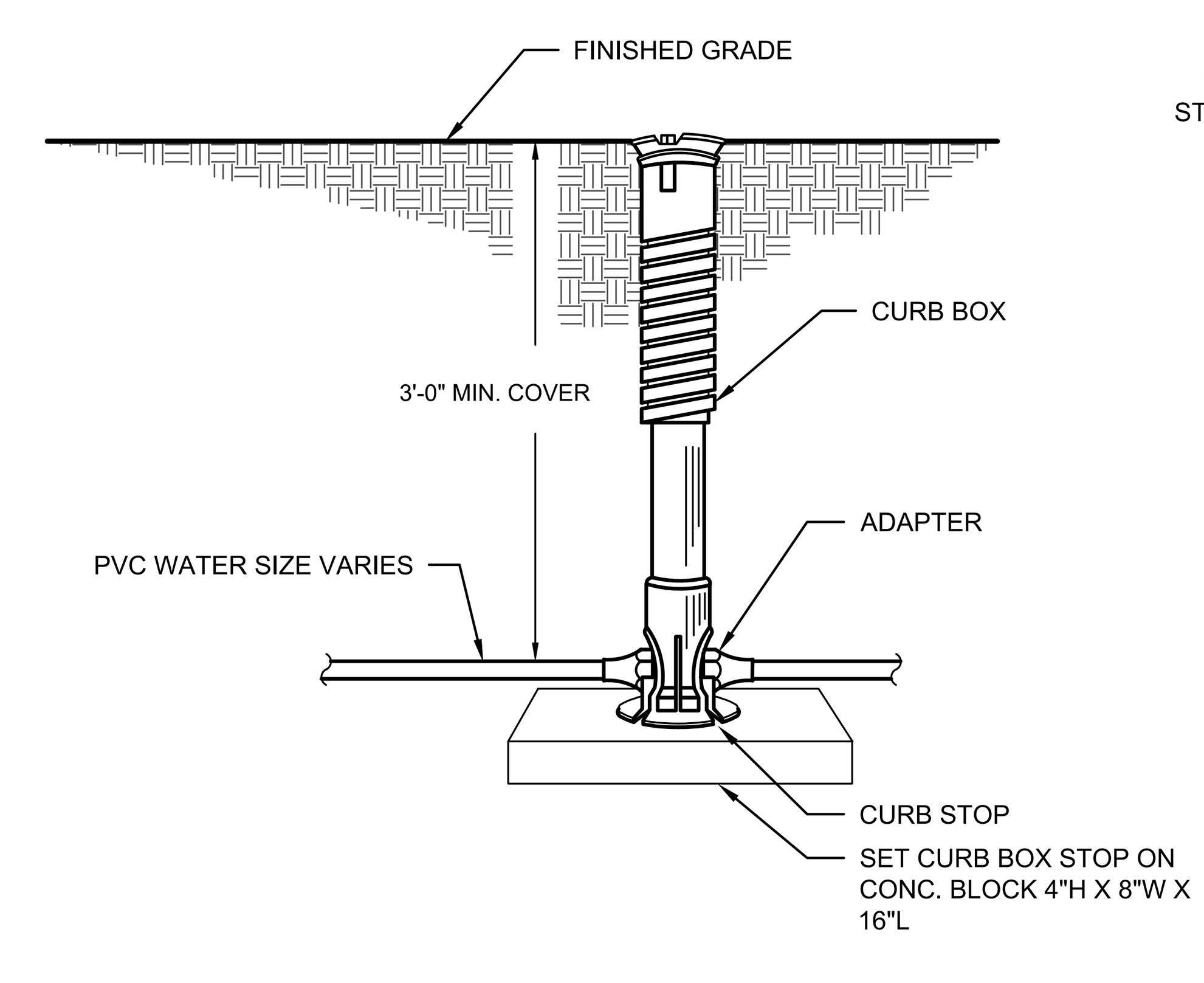
PUMP STATION - PROFILE
SCALE 1" = 2'



SPECIAL EMPHASIS CROSSWALK MARKING
NOT TO SCALE



SILT FENCE DETAIL
NOT TO SCALE



CURB STOP AND BOX DETAIL
NOT TO SCALE

Gosling Czubak engineering sciences, inc.
1280 Business Park Dr.
Traverse City, Michigan
231-946-9191 phone
info@goslingczubak.com
www.goslingczubak.com

CIVIL ENGINEERING
SURVEYING
ENVIRONMENTAL SERVICES
GEOTECHNICAL
CONSTRUCTION SERVICES
DRILLING
LANDSCAPE ARCHITECTURE

No.	Date	Revision	By
1	11/12/18	UPDATED PUMP STATION DETAIL	KSK

CONSTRUCTION DETAILS
HAY LAKE MARINA PARK
LITTLEFIELD TWP, EMMET CO., MI

Date Issued:	10/10/18
Date Surveyed:	10/21/14
Designed By:	KDH
Drawn By:	NTS/KSK
Checked By:	KDH
Scale:	AS NOTED

Original sheet size is 24x36

Location:
PART OF THE EAST 1/2
SECTION 3 - T35N, R04W
LITTLEFIELD TOWNSHIP
EMMET COUNTY, MI

Project Number:
2016375002.01

Sheet:
S14