

**GENERAL NOTES**

- THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL MEASURES TO PROTECT STOCKPILE AREAS AND STORAGE AREAS FROM EROSION AND CONSTRUCTION ACTIVITIES ON EXPOSED OPERATIONS SHALL BE FULLY RESTORED BY THE CONTRACTOR UPON COMPLETION OF THE PROJECT. IF THE STAGING AREA IS DAMAGED, IT SHALL BE RESTORED TO ITS ORIGINAL CONDITION. IF THE STAGING AREA IS IMPAVED, IT SHALL BE REPAVED, TOPSOILED, SEEDED AND MULCHED TO THE SATISFACTION OF THE ENGINEER. ALL COSTS ASSOCIATED WITH RESTORATION OF THE STAGING AREA SHALL BE AT THE CONTRACTOR'S EXPENSE. IF THE ENGINEER DETERMINES THAT A SATISFACTORY STAND OF GRASS DOES NOT EXIST AT THE TIME OF FINAL INSPECTION, ALL COSTS ASSOCIATED WITH RE-ESTABLISHING A SATISFACTORY STAND OF GRASS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- EQUIPMENT AND/OR STOCKPILE MATERIAL SHALL NOT BE STORED IN THE DRIPLINE AREA OF ANY TREE.
- THE CONTRACTOR SHALL CONTACT ARTESIAN WASTEWATER MANAGEMENT, INC. AT LEAST 14 DAYS IN ADVANCE OF STARTING CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELMARVA AT 1-800-282-8555 FOR UTILITY LOCATIONS WITHIN AND SURROUNDING CONSTRUCTION AREAS NOT LESS THAN 3 DAYS BEFORE PERFORMING ANY EXCAVATION.
- THE CONTRACTOR SHALL ESTABLISH BENCHMARK ELEVATION DATUM IN ACCORDANCE WITH ARTESIAN WASTEWATER MANAGEMENT, INC.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY SEED AND MULCH FOR ALL AREAS WHERE SOIL IS EXPOSED AND SILT FENCE IS NOT SPECIFIED, BY THE CLOSE OF EACH BUSINESS DAY.
- THE CONTRACTOR SHALL MAINTAIN PUBLIC ROADS AND STREETS IN A BROOM SWEPT CONDITION AT ALL TIMES.
- PIPE JOINTS TO BE RESTRAINED ARE SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS, AND PRODUCTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE INTENDED WORK.
- MAINTENANCE OF TRAFFIC - ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL ENSURE THE LEAST PRACTICABLE OBSTRUCTION TO TRAFFIC, CONSISTENT WITH SAFETY AND SHALL COMPLY WITH THE DEPARTMENT MANUAL ENTITLED "TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS". THE MOST CURRENT VERSION OF THIS MANUAL IN EFFECT AT THE TIME OF CONSTRUCTION SHALL BE USED. HEREINAFTER, THIS MANUAL SHALL BE REFERRED TO AS THE "TRAFFIC CONTROL MANUAL". THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER BEFORE THE START OF THE PROJECT.
- ALL UTILITIES PLOTTED ON THE DRAWINGS ARE FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR, PRIOR TO LAYING A RUN OF PIPE OR OTHER INVOLVED CONSTRUCTION, SHALL EXCAVATE WITHIN THE ALIGNMENT AT POINTS OF POSSIBLE CONFLICT TO DETERMINE IF A CONFLICT EXISTS. ANY CONFLICTS SHALL BE COORDINATED BY THE CONTRACTOR WITH THE ENGINEER AND THE UTILITY INVOLVED. THE ENGINEER SHALL DETERMINE THE SOLUTION, EXCAVATING, BACKFILLING AND RESTORATION OF THE TEST HOLES AS REQUIRED FOR UTILITY INVESTIGATIONS SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE UTILITIES AS SHOWN ON THE PLANS.
- CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE EXECUTION OF THIS CONTRACT.
- ALL CONSTRUCTION SHALL BE PERFORMED TO THE SATISFACTION OF THE ENGINEER. ARTESIAN WASTEWATER MANAGEMENT, INC. DELAWARE DEPARTMENT OF TRANSPORTATION (DELDOT) AND ALL RESPECTIVE UTILITY OWNERS IN ACCORDANCE WITH ALL APPLICABLE CONTRACT DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
- CONTRACTOR TO DEFLECT WATER MAINS WITH VERTICAL BENDS OR VERTICAL DEFLECTION AS NEEDED TO ACHIEVE APPROPRIATE SEPARATION FROM OTHER UTILITIES AS PER WATER CROSSING CHARTS.
- WATER SUPPLY BY ARTESIAN WATER COMPANY. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH ARTESIAN WATER COMPANY STANDARDS AND SPECIFICATIONS. ALL WATER MAINS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM SANITARY SEWER AND SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES.
- THE ENTIRE WATER DISTRIBUTION SYSTEM MUST BE IN COMPLIANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL AND THE DELAWARE STATE DIVISION OF PUBLIC HEALTH.
- FIXTURE LOCATIONS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF ARTESIAN WATER COMPANY.
- EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND ALLOW FOR UTILITY LOCATION.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE DONE TO EXISTING UTILITIES DUE TO HIS/HER NEGLIGENCE SHALL BE IMMEDIATELY REPAIRED AT HIS/HER EXPENSE.
- PLAN LOCATIONS AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE SPECIFIED BY THE ENGINEER. THE CONTRACTOR SHALL ADJUST MATERIAL LOCATIONS AS REQUIRED TO AVOID CONFLICTS WITH OTHER UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF DAMAGED OR DESTROYED LANDSCAPE.
- THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE PERFORMED IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT.
- DISINFECTION REQUIREMENTS SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE STATE ENVIRONMENTAL PROTECTION AGENCY OR EQUIVALENT TO THE AMERICAN WATER WORKS ASSOCIATION STANDARD C60-08.
- ALL WATER PIPES SHALL HAVE A MINIMUM COVER OF 3.5 FEET.
- THE CONTRACTOR SHALL PROVIDE PRESSURE REDUCING VALVES IN UNITS, IF NECESSARY.
- THE CONTRACTOR SHALL PROVIDE BUTTRESSES FOR ALL HORIZONTAL AND VERTICAL BENDS AS REQUIRED PER STANDARDS AND SPECIFICATIONS OF THE ARTESIAN WATER COMPANY.
- EROSION CONTROL FOR WORK RELATED TO THE INSTALLATION OF WATERLINE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED IN ACCORDANCE WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK OF 1994.
- THE CONTRACTOR SHALL INSTALL AIR RELEASE VALVES AS SPECIFIED IN FIELD.
- ALL GUL-DE-SACS TO HAVE MINIMUM 30 FOOT CLEAR PAVED RADIUS.
- ALL DWELLINGS ARE REQUIRED TO HAVE METER PITS WHICH ARE TO BE PURCHASED FROM ARTESIAN WATER CO. AND INSTALLED BY THE DEVELOPER AT HIS COST.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL MATERIALS FOR APPROVAL TO THE OWNER PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL MATERIALS ORDERED AND INSTALLED PRIOR TO THE OWNER'S REVIEW AND ACCEPTANCE WILL BE AT THE CONTRACTOR'S RISK.
- THE CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH OR ACCESS PITS WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY. STEEL PLATES SHALL BE USED ON ANY TRENCH OR ACCESS PITS WHICH MUST REMAIN OPEN. THIS REQUIREMENT DOES NOT APPLY TO AREAS COMPLETELY CLOSED AND SECURE FROM VEHICULAR OR PEDESTRIAN TRAFFIC.
- ALL PVC SANITARY SEWER SHALL BE MARKED WITH LOCATOR TAPE, LABELED "SANITARY SEWER" INSTALLED 12" BELOW FINISH GRADE.
- FINAL APPROVED SET OF PLANS AND SPECIFICATIONS SHALL BE MAINTAINED ON THE JOB SITE. FAILURE TO COMPLY WITH THIS PROVISION SHALL BE CONSIDERED CAUSE TO STOP THE WORK.
- THE CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF CONTRACT DRAWINGS ON WHICH HE SHALL NOTE IN RED, THE ALIGNMENTS AND INVERTS OF ALL UNDERGROUND UTILITIES INSTALLED OR ENCOUNTERED DURING THE PROGRESS OF THE WORK. ALL DISCREPANCIES BETWEEN THE PLAN LOCATIONS AND ELEVATIONS OF BOTH THE EXISTING AND PROPOSED UTILITIES SHALL BE SHOWN ON THE AS-BUILT DRAWINGS TO BE MAINTAINED BY THE CONTRACTOR IN THE FIELD.
- ALL SANITARY SEWERS AND MANHOLES SHALL BE TESTED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. IN ADDITION ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C1244 AND AS DESCRIBED BELOW.  
VACUUM TESTING SHALL BE CARRIED OUT IMMEDIATELY AFTER ASSEMBLY AND PRIOR TO BACKFILLING. ALL LIFT HOLES SHALL BE PLUGGED WITH AN APPROVED NON-SHRINK GROUT, OR RUBBER PLUG. GROUT SHALL NOT BE PLACED IN THE HORIZONTAL JOINTS BEFORE TESTING. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED, TAKING CARE TO SECURELY BRACE THE PLUGS FROM BEING DRAWN INTO THE MANHOLE.  
ALL MANHOLES SHALL BE VACUUM TESTED FOR LEAKAGE. A VACUUM OF TEN (10) INCHES OF MERCURY SHALL BE PLACED ON THE MANHOLE AND THE TIME MEASURED FOR THE VACUUM TO DROP TO NINE (9) INCHES OF MERCURY. THE VACUUM SHALL NOT DROP BELOW NINE (9) INCHES OF MERCURY FOR THE FOLLOWING PERIODS FOR EACH SIZE OF MANHOLE:  
FORTY-EIGHT (48) INCHES DIAMETER - SIXTY (60) SECONDS  
SEVENTY-TWO (72) INCHES DIAMETER - NINETY (90) SECONDS  
CONTRACTOR SHALL PROVIDE ALL MATERIAL AND EQUIPMENT NECESSARY FOR TESTING. IF TESTING FAILS, CONTRACTOR SHALL SEAL ALL LEAKS AND RE-TEST UNTIL ACCEPTABLE. THAT THIS TESTING SHALL BE PERFORMED BEFORE BACKFILLING SO THAT ANY LEAKS CAN BE FOUND AND FIXED EXTERNALLY. THE MANHOLE FRAME AND ADJUSTING RINGS SHALL BE IN PLACE WHEN TESTING.
- ROUTINE PERIODIC INSPECTIONS DURING CONSTRUCTION WILL BE PROVIDED BY THE OWNER. THESE INSPECTIONS DO NOT RELIEVE THE CONTRACTOR FROM HIS OBLIGATION AND RESPONSIBILITY FOR CONSTRUCTING A SANITARY SEWER SYSTEM IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE OWNER.
- AFTER TESTING IS COMPLETE AND ALL COMPONENTS OF THE SANITARY SEWER SYSTEM ARE DEEMED ACCEPTABLE TO ARTESIAN WASTEWATER MANAGEMENT, INC., THE CONTRACTOR SHALL SUBMIT THE AS-BUILT DRAWINGS TO ARTESIAN WASTEWATER MANAGEMENT, INC. ANY DISCREPANCIES NOTED DURING THE FINAL INSPECTION SHALL BE CORRECTED BY THE CONTRACTOR WITHIN 30 DAYS.
- THE PROPERTY AND RIGHT OF WAY LINES SHOWN ON THESE DRAWINGS ARE APPROXIMATE.

**AND ARE NOT BASED ON METES AND BOUNDS FIELD RUN SURVEYS OR PROPERTY RECORDS.**

- THE CONTRACTOR SHALL TAKE PRECAUTIONS TO LOCATE PROPERTY LINES AND RIGHT OF AREAS AND STORAGE AREAS FROM EROSION AND CONSTRUCTION ACTIVITIES ON EXPOSED PROPERTY AND/OR RIGHTS OF WAYS WHERE SAID CONSTRUCTION IS PROHIBITED. THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELMARVA AT 1-800-282-8555 FOR UTILITY LOCATIONS WITHIN AND SURROUNDING CONSTRUCTION AREAS NOT LESS THAN 3 DAYS BEFORE PERFORMING ANY EXCAVATION.
- ANY REQUIRED EASEMENTS, PERMITS AND APPROVALS SHALL BE ACQUIRED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF SANITARY SEWER CONSTRUCTION.
- PIPE MATERIAL, GRAVITY SEWER MAIN LESS THAN OR EQUAL TO 15 FEET DEEP SHALL BE PVC SDR 26 OR DIP, GREATER THAN 15 FEET SHALL TO BE DIP CONCRETE LINED WITH CERAMIC COATING). A MINIMUM "C" FACTOR OF 130 SHALL BE USED FOR THE DESIGN OF SANITARY SEWER.
- ALL GRAVITY SEWER MAINS SHALL HAVE MINIMUM COVER OF 48 INCHES.
- MANHOLES SHALL BE OF THE PRECAST CONCRETE OR POURED-IN-PLACE CONCRETE TYPE. MANHOLES SHALL BE WATERPROOFED ON THE EXTERIOR WITH A BITUMINOUS COATING. JOINTS BETWEEN MANHOLE SECTIONS TO BE MADE WITH EZ-RAP PAC BUTL JOINT WRAP. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A GASKETTED FLEXIBLE WATER-TIGHT CONNECTION OR ANY WATER-TIGHT CONNECTION ARRANGEMENT THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL TO TAKE PLACE. CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE UTILIZING A HOLE SAW AND A TYCITE ADAPTER WITH A LOCK GASKETS OR LINK SEALS. THE INTERIOR JOINT SHALL BE SEALED WITH NON-SHRINK HYDRAULIC GROUT.
- CLEARANCES BETWEEN SEWERS AND OTHER UTILITIES, BOTH EXISTING AND PROPOSED, SHOULD BE DESIGNED AS FOLLOWS:  
SEWERS CROSSING WATER MAINS, SEWERS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 18 INCHES MEASURED FROM THE OUTSIDE OF THE WATER MAIN TO THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHETHER THE WATER MAIN IS ABOVE OR BELOW THE SEWER, WHERE POSSIBLE, THE SEWER SHALL BE BENEATH THE WATER MAIN. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE BE AT THE WATER MAIN JOINTS. WHERE WATER MAIN CROSSES UNDER A SEWER, THE ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED.  
SEWER PARALLEL TO WATER MAIN, SEWERS SHALL BE KEPT AT LEAST 10 FEET HORIZONTALLY FROM ANY WATER MAIN AS MEASURED FROM THE OUTSIDE OF THE WATER MAIN TO THE OUTSIDE OF THE SEWER.  
IF SEWER AND WATER MAIN CANNOT BE BUILT TO SPECIFIED CLEARANCES, STEEL ENCASUREMENT SHALL BE USED. AT A JOINT THERE SHOULD BE 5 FEET OF ENCASUREMENT ON EITHER SIDE OF THE JOINT AND AT A CROSSING THERE SHALL BE 10 FEET ON EITHER SIDE OF THE CROSSING.  
CROSSING OTHER UTILITIES, SEWERS SHALL HAVE A MINIMUM OF 18-INCH CLEARANCE FROM ELECTRIC LINES, GAS MAINS, ETC.  
WHERE STORM WATER CROSSES OVER THE GRAVITY SEWER SYSTEM AND THERE IS MORE THAN 3 FEET OF SEPARATION NO SPECIAL CONSTRUCTION IS REQUIRED.  
WHERE STORM WATER CROSSES OVER THE GRAVITY SEWER SYSTEM AND THERE IS BETWEEN 6-INCHES AND 3 FEET OF SEPARATION THE GRAVITY SEWER PIPE MUST EITHER BE CONSTRUCTED OF DUCTILE IRON PIPE OR BE CONSTRUCTED OF 50R-26 PVC AND STEEL ENCASED 10 FOOT MINIMUM ON EACH SIDE OF THE CROSSING). ALL CROSSINGS SHALL BE SEALED TO PREVENT ENTRY OF SOIL OR OTHER FOREIGN MATERIAL.  
SEPARATION OF LESS THAN 6-INCHES MUST BE APPROVED BY ARTESIAN.
- BENCHMARKS:  
TR-100, 101220.55 NORTH 275244.36 EAST ELEV. 28.48 REBAR 4 CAP  
TR-101, 100856.80 NORTH 275074.14 EAST/ELEV. 27.14 REBAR 4 CAP  
TR-206, 100404.12 NORTH 271865.29 EAST ELEV. 27.15 REBAR 4 CAP  
HORIZONTAL DATUM, DELAWARE COORDINATE SYSTEM 83  
VERTICAL DATUM, NAVD, 88

**UNDERGROUND UTILITY NOTES**

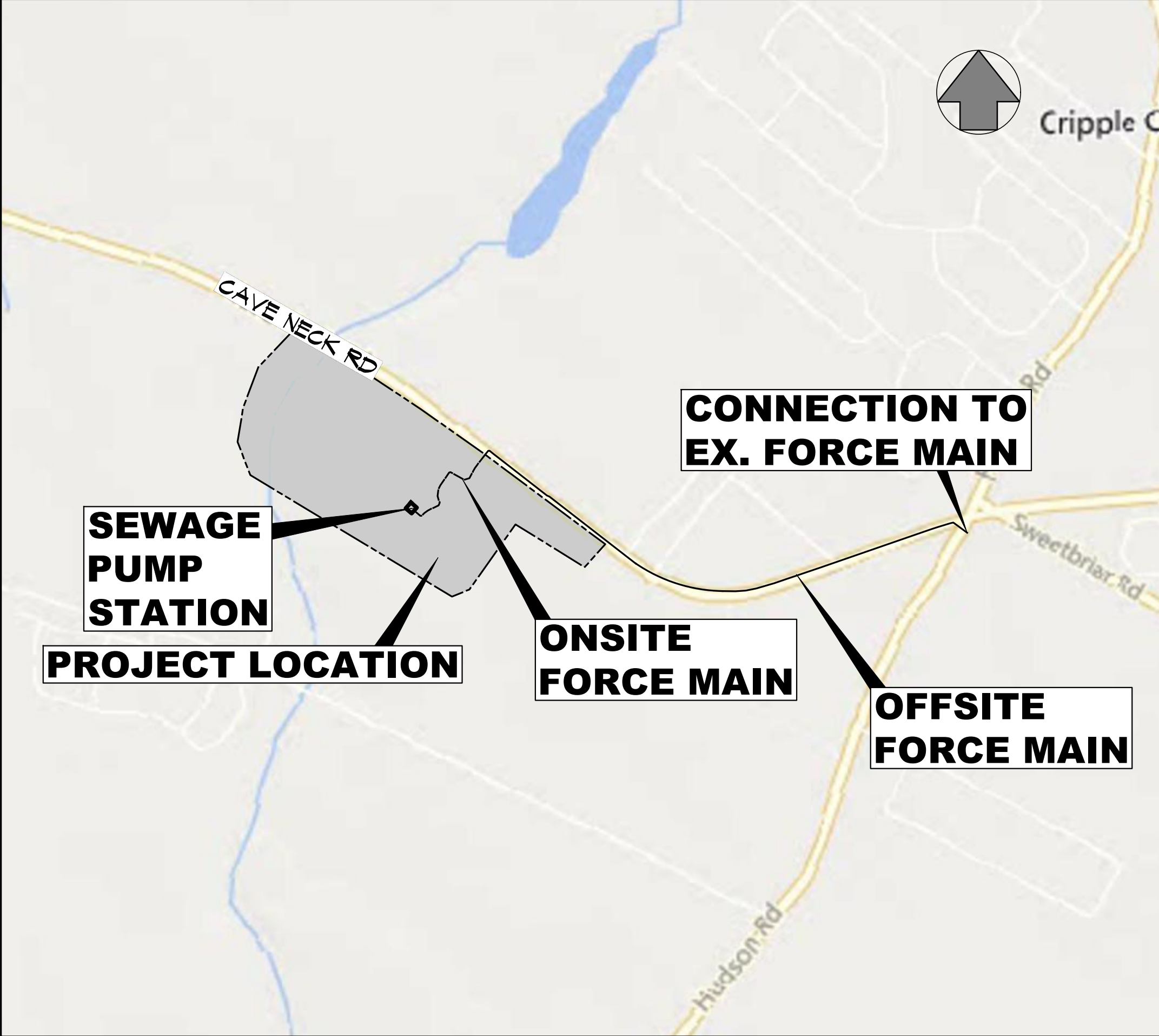
- THE LOCATION OF UNDERGROUND UTILITIES AS INDICATED ON PLANS HAS BEEN OBTAINED FROM EXISTING RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION SHOWN. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED THAT THE LOCATION, SIZE AND TYPE OF MATERIALS OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR'S RESPONSIBILITY IS TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH UTILITIES INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE OWNER OF HIS OPERATIONAL PLANS. IN THE EVENT OF AN UNEXPECTED UTILITY INTERFERENCE DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER. ANY SUCH MAINS AND/OR SERVICES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED IMMEDIATELY AT HIS EXPENSE.
- CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING UTILITIES AND EXISTING PAVEMENT PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. WHEN CROSSING EXISTING UTILITIES, CONTRACTOR SHALL TEST FIT PRIOR TO CONSTRUCTION IN ORDER TO VERIFY VERTICAL CLEARANCE AND SHALL NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- PRIOR TO PERFORMING ANY EXCAVATION GREATER THAN 6 INCHES, THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE THE LOCATION OF UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL ORGANIZATIONS THAT CONTROL EXISTING UNDERGROUND UTILITIES IN THE CONSTRUCTION AREA OR WOULD BE AFFECTED BY CONSTRUCTION WORK AROUND THE EXISTING UTILITIES.
- THE CONTRACTOR SHALL NOT START EXCAVATION UNTIL ALL UTILITY LINE LOCATIONS HAVE BEEN STAKED OR OTHERWISE CLEARLY MARKED AND DOCUMENTATION FURNISHED TO THE OWNER. ALL MARKINGS SHALL BE CONSIDERED APPROXIMATE, AND UTILITIES OTHER THAN THOSE SHOWN SHALL BE CONSIDERED TO EXIST.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEFINITE LOCATION OF EACH UTILITY WITHIN THE WORK AREA. CARE SHOULD BE EXERCISED DURING EXCAVATION WORK TO AVOID DAMAGING OR DISRUPTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING (AT CONTRACTOR'S EXPENSE) DAMAGE TO ANY UTILITY CAUSED BY THE CONTRACTOR'S WORK.
- WHERE EXISTING UNDERGROUND UTILITIES OR OTHER CONSTRUCTION ARE EXPECTED TO BE IN PROXIMITY TO PROPOSED CONSTRUCTION OR WHEN APPROACHING EXISTING UTILITIES OR STRUCTURES FOR CONNECTIONS, THE CONTRACTOR SHALL DIG TEST PITS TO DETERMINE THE EXACT LOCATION AND INVERTS OF THE EXISTING UTILITY TO ALLOW FOR POSSIBLE CHANGES TO THE PROPOSED UTILITY IN LINE AND/OR GRADE. THE CONTRACTOR SHALL ALSO DIG TEST PITS IN THE LOCATION OF THE PROPOSED CONNECTIONS TO EXISTING UTILITIES AND SHALL MAKE ALL MEASUREMENTS NECESSARY TO ENSURE PROPER CONNECTION. ANY NECESSARY CHANGES IN LINE OR GRADE OF WORK CAUSED BY FAILURE TO TAKE SUCH PRECAUTIONS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
- WHEN IT IS NECESSARY TO EXCAVATE NEAR OR INTERFERE WITH ANY SEWER LINE, WATER SERVICES, DRAIN PIPE, CATCH BASIN, CULVERT, OR OTHER STRUCTURES, THE CONTRACTOR SHALL MAINTAIN THE SAME IN WORKING ORDER AND SHALL REPAIR AND MAKE GOOD ANY DAMAGE DONE DURING THE PROGRESS OF THE WORK.
- WHERE EXISTING UTILITIES CROSS THE TRENCH EXCAVATION, THEY SHALL BE ADEQUATELY SUPPORTED AND PROTECTED FROM DAMAGE DUE TO CONSTRUCTION. ALL METHODS FOR SUPPORTING AND MAINTAINING THESE UTILITIES SHALL BE SUBJECT TO REVIEW BY OWNER. CARE SHALL BE TAKEN TO ENSURE THAT THE GRADES AND ALIGNMENTS OF EXISTING ARE MAINTAINED AND THE PIPE JOINTS ARE NOT DISTURBED. BACKFILL SHALL BE CAREFULLY PLACED AND TAMPED TO PREVENT DAMAGE OR FUTURE SETTLEMENT. ANY DAMAGE OR INTERFERENCE OF THE UTILITIES DUE TO CONSTRUCTION OR SETTLEMENT SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- ANY UNPROTECTED CABLE (DIRECT BURIED) ENCOUNTERED THAT IS VERIFIED AS NOT ABANDONED IN PLACE SHALL BE PROTECTED. THE UTILITY OWNER MAY DIRECT THE CABLE BE PLACED IN SPLIT DUCT OF APPROPRIATE SIZE AND CONCRETE ENCASED THROUGH THE AREA OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO AVOID HAVING TO CUT AND SPLICE DIRECT BURIED CABLE. THE CONTRACTOR SHALL NOTE SPLIT DUCT PORTIONS ON AS-BUILTS.
- ALL EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF OFF COUNTY/STATE PROPERTY, EXCEPT FOR CONTAMINATED SOILS OR LIQUIDS. ALL CONTAMINATED SOILS AND LIQUIDS SHALL BE TRANSPORTED TO AN APPROVED RECEIVING SITE AS DIRECTED BY THE ENGINEER FOR FINAL DISPOSITION.
- INTERRUPTION OF EXISTING UTILITIES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND/OR AT THE DIRECTION OF THE UTILITY OWNERS.

# SEWAGE PUMPING STATION AND FORCE MAIN

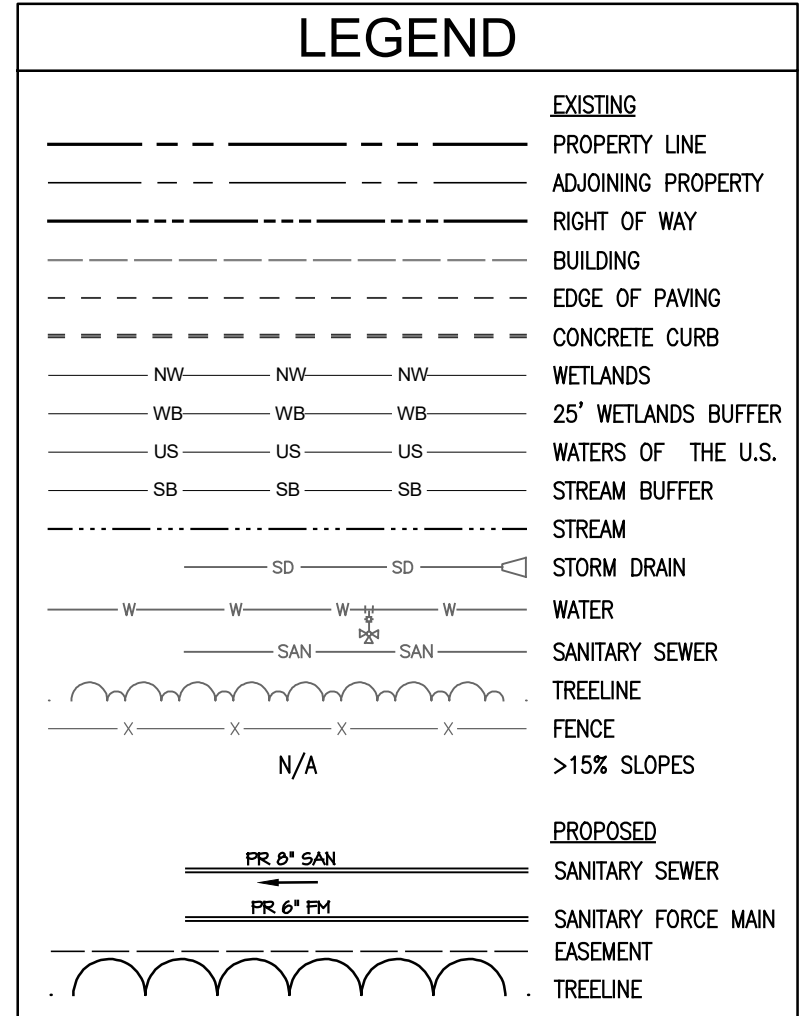
## FOR PARADISE MEADOWS

### SUSSEX COUNTY, DELAWARE

### SUSSEX COUNTY PLANNING # 2022-03



**LOCATION MAP**  
SCALE: 1" = 1,000'



**DRAWING INDEX**

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| SHEET 15    | SPS ELECTRICAL PLAN & DETAILS   |
| SHEET 16    | SPS ELECTRICAL DIAGRAMS         |

CALL BEFORE YOU DIG  
MISS UTILITY OF DELMARVA  
1-800-282-8555 (IN DE) PLEASE GIVE  
THREE WORKING DAYS ADVANCE  
NOTICE

ALL CONSTRUCTION MUST BE DONE IN  
COMPLIANCE WITH THE OCCUPATIONAL SAFETY  
AND HEALTH ACT OF 1970 AND ALL RULES AND  
REGULATIONS THERETO APPURTENANT.

**ARTESIAN WASTEWATER COMPANY NOTES**

- BIDS SHALL BE BASED ON THE APPROVED PROJECT MANUAL & DRAWINGS PROVIDED, INCLUDING THE APPROVED EROSION & SEDIMENT CONTROL DRAWINGS AND SHALL INCLUDE ALL RESTORATION.
- THIS DRAWING DOES NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE DELAWARE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS, AND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, REGARDLESS OF ANY INPUT FROM THE OWNER, DEVELOPER OR ENGINEER.
- ALL MATERIALS AND INSTALLATION SHALL CONFORM TO ARTESIAN WATER COMPANY, INC. SPECIFICATIONS AND THE 10 STATE STANDARDS.
- CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING AT THE PROJECT SITE. THE FOLLOWING AGENCIES SHALL BE CONTACTED AT LEAST 48 HOURS IN ADVANCE OF THE PRE-CONSTRUCTION MEETING:  
ARTESIAN WATER COMPANY, INC. (302) 453-6903  
ARTESIAN WASTEWATER MANAGEMENT, INC. (302) 453-6903  
SUSSEX COUNTY DEPARTMENT OF PUBLIC WORKS (302) 855-7703  
MORRIS AND RITCHE ASSOCIATES, INC. (410) 515-9000
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO AND MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
- IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER TO OBTAIN A GRADING PERMIT FOR ANY GRADING OPERATION ON THIS PROJECT.
- ALL PIPE ELEVATIONS ARE TO INVERT, UNLESS OTHERWISE NOTED. MINIMUM DEPTH TO FORCE MAIN AND SEWER PIPE SHALL BE 48" FROM FINISHED GRADE TO TOP OF PIPE, UNLESS OTHERWISE NOTED.
- MINIMUM CLEARANCE FROM EXISTING UTILITIES SHALL BE 10' HORIZONTAL AND 18" VERTICAL.
- THE CONTRACTOR SHALL KEEP THE TRENCHES AND EXCAVATION DEWATERED AT ALL TIMES. EXCAVATED MATERIAL OR TRENCH BOTTOM MATERIAL RENDERED UNSUITABLE FOR BEDDING OR REUSE, DUE TO INADEQUATE AND/OR IMPROPER DEWATERING OPERATIONS. MATERIAL SHALL BE REPLACED WITH SELECT BACKFILL AT NO ADDITIONAL COST TO THE OWNER. DEWATERING BASINS SHALL BE CONSTRUCTED AS REQUIRED TO CONTROL DISCHARGE FROM TRENCH DEWATERING OPERATIONS.
- BACKFILL OPERATION SHALL BE KEPT TO THE TOP OF TRENCH FOR ON-SITE AND EXISTING AREAS, TO SUBGRADE IN AREAS OF NEW CONSTRUCTION, AND WITHIN 100 FEET OF EXCAVATION AND PIPE LAYING OPERATIONS. ALL TRENCHES SHALL BE CLOSED AT THE END OF THE WORK DAY. BACKFILL SHALL BE GRADED TO PREVENT PONDING OF SURFACE WATER OVER TRENCH.
- STANDARD MANUFACTURED LENGTHS OF PIPE SHALL BE USED FOR ALL FORCE MAINS AND SEWER MAINS.
- BEFORE THE START OF CONSTRUCTION, THE CONTRACTOR IS TO VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "ONE CALL" (811) OR 1-800-257-7777.
- CONNECTION TO THE EXISTING SEWER SHALL BE MADE ONLY AFTER THE NEW SEWER SYSTEM HAS BEEN INSTALLED, TESTED, AND APPROVED BY ARTESIAN WATER COMPANY, INC.
- ALL WORK WITHIN THE SUSSEX COUNTY ROAD RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.
- EXISTING UTILITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR AND THE COMPLETENESS OR ACCURACY OF THE SAME IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES BEFORE TRENCH EXCAVATION BEGINS. HE SHALL PROTECT SERVICE CONNECTIONS AND MAINTAIN THEIR UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.
- SEDIMENT CONTROL SIGN-OFF IN THE SIGNATURE BLOCK DOES NOT RELEASE THE DEVELOPER FROM OBTAINING AN APPROVED GRADING PERMIT.
- MAINTENANCE OF TRAFFIC - ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL ENSURE THE LEAST PRACTICABLE OBSTRUCTION TO TRAFFIC, CONSISTENT WITH SAFETY, AND SHALL COMPLY WITH THE DELDOT DEPARTMENT MANUAL ENTITLED "TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS". THE MOST CURRENT VERSION OF THIS MANUAL IN EFFECT AT THE TIME OF CONSTRUCTION SHALL BE USED. HEREINAFTER, THIS MANUAL SHALL BE REFERRED TO AS THE "TRAFFIC CONTROL MANUAL". THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER BEFORE THE START OF THE PROJECT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DISPOSE OF EXCESS TRENCH EXCAVATION AND GRADING MATERIAL AT A LOCATION WITH AN APPROVED EROSION & SEDIMENT CONTROL PLAN AND PERMETER SEDIMENT CONTROLS.

**PROJECT TEAM**

|                                   |  |
|-----------------------------------|--|
| DEVELOPER:                        | CNR LAND INVESTMENT, LLC<br>MR. JOHN RICHARDSON<br>260 HOPKINSON ROAD<br>CHURCHVILLE, MD 21028                                 |
| LAND PLANNERS,<br>CIVIL ENGINEER: | MORRIS & RITCHE ASSOCIATES, INC.<br>18 BOULDER CIRCLE, SUITE 36<br>NEW CASTLE, DE 19720<br>ATTN: MR. PHILLIP L. TOLLIVER, P.E. |
| NUMBER OF PROPOSED LOTS:          | 141 SINGLE FAMILY HOMES  |
| WATER:                            | PUBLIC (ARTESIAN WATER COMPANY INC.)   |
| SEWER:                            | PUBLIC (ARTESIAN WASTEWATER MANAGEMENT INC.)   |



Know what's below.  
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WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY  
COMPONENTS FOR CONSTRUCTION SAFETY. ALL  
CONSTRUCTION MUST BE DONE IN COMPLIANCE  
WITH THE OCCUPATIONAL SAFETY AND HEALTH  
ACT OF 1970 AND ALL RULES AND REGULATIONS  
THERETO APPURTENANT.

Consultant:  
**MORRIS & RITCHE ASSOC., INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS & LANDSCAPE ARCHITECTS  
18 BOULDER CIRCLE, SUITE 36  
NEW CASTLE, DE 19720  
PHONE: (302) 326-2200 FAX NUMBER: (302) 326-2399

*Phillip L. Tolliver*  
PHILLIP L. TOLLIVER, P.E. DATE 07/30/2024

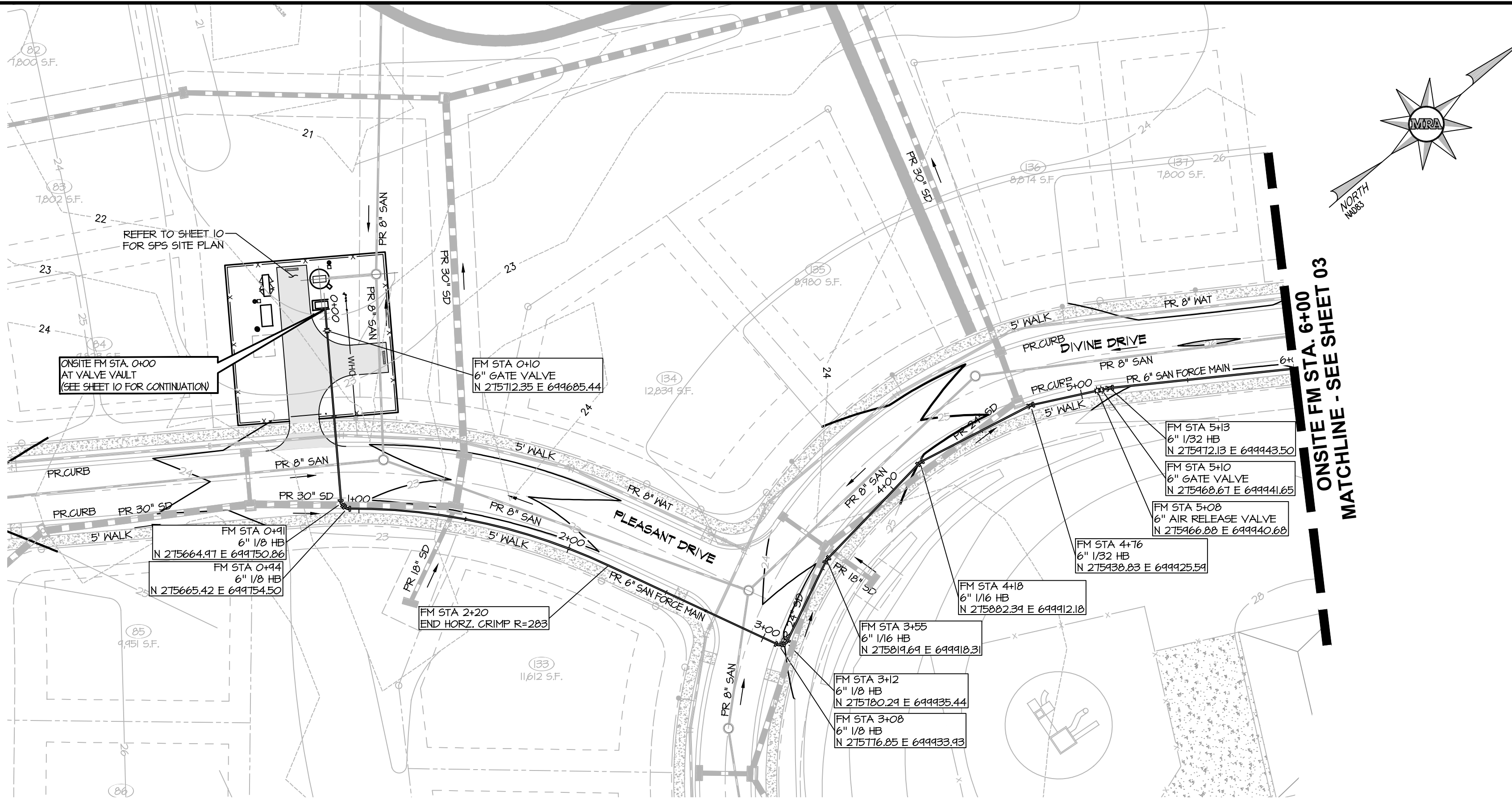
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18 BOULDER CIRCLE, SUITE 36  
WILMINGTON, DE 19720  
(302) 326-2200  
FAX: (302) 326-2399  
MRAGTA.COM

**SPS TITLE**  
FOR  
**PARADISE MEADOWS**

|            |                          |                  |
|------------|--------------------------|------------------|
| DATE       | REVISIONS                | JOB NO.: 21482   |
| 03/21/2024 | REVISED PER AWM COMMENTS | DATE: 07/25/2024 |
|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 01 OF 10  |

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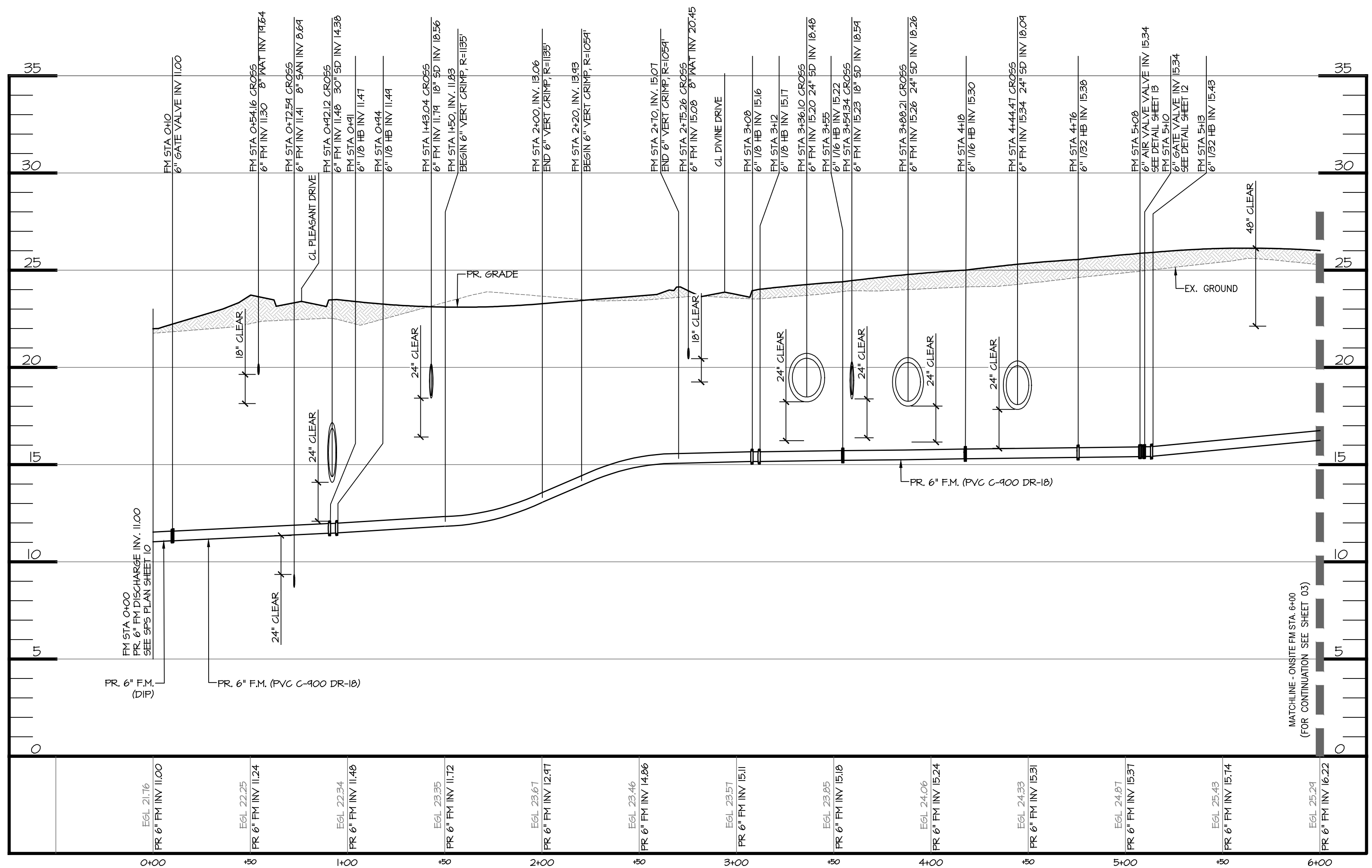




**ONSITE FORCE MAIN PLAN VIEW**  
 SCALE: 1" = 40'  
 Scale 1" = 40'

**LEGEND**

|         |                                |
|---------|--------------------------------|
| ---     | PROPERTY BOUNDARY              |
| - - - - | EX. RIGHT-OF-WAY               |
| - - - - | EX. ADJACENT PROPERTY LINE     |
| - - - - | PR. RIGHT OF WAY               |
| - - - - | PR. LOT LINE/PARCEL LINE       |
| - - - - | PR. EASEMENT                   |
| - - - - | BUILDING SETBACK LINE          |
| FP      | 100 YR FEMA FLOODPLAIN         |
| NW      | NON-JURISDICTIONAL WETLANDS    |
| WB      | WETLANDS BUFFER                |
| ○       | PR. LOT NUMBER                 |
| —       | PR. CURB & GUTTER              |
| —       | PR. CONC SIDEWALK              |
| —       | PR. HANDICAP RAMP              |
| —       | PR. SANITARY LATERAL           |
| —       | PR. SANITARY SEWER & MANHOLE   |
| —       | PR. SANITARY FORCE MAIN        |
| —       | PR. WATER LATERAL              |
| —       | PR. WATER MAIN W/HYDRANT & TEE |



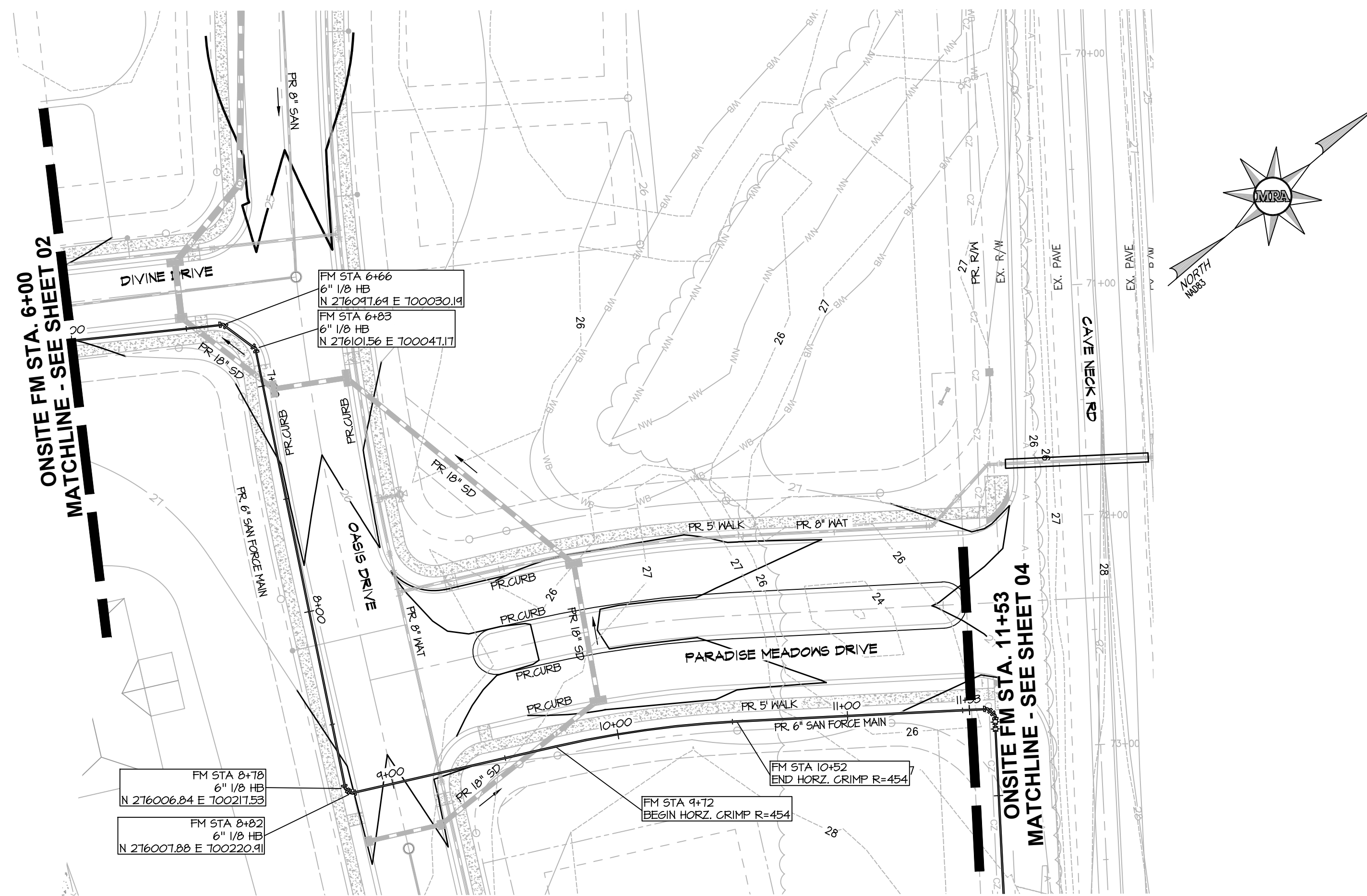
**ONSITE FM PROFILE**  
 SCALE: H: 1"=40'  
 V: 1"=4'

**NOTE:**  
 MAINTAIN A MINIMUM 10 FEET HORIZONTAL AND 18 INCHES VERTICAL SEPARATION BETWEEN WATER MAIN AND SANITARY SEWER PER TEN STATES STANDARDS.

|  | <b>MORRIS &amp; RITCHIE ASSOCIATES, INC.</b><br>ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS<br>18 BOULDEN CIRCLE, SUITE: 36<br>WILMINGTON, DE 19720<br>(302) 326-2200<br>FAX: (302) 326-2399<br>MRAGTA.COM |   |                |            |                          |                 |  |  |                  |  |  |               |  |  |               |  |  |               |  |  |                 |  |  |
|--|--|---|----------------|------------|--------------------------|-----------------|--|--|------------------|--|--|---------------|--|--|---------------|--|--|---------------|--|--|-----------------|--|--|
|  | <b>FORCE MAIN PLAN AND PROFILE</b><br>FOR<br><b>PARADISE MEADOWS</b>   |   |                |            |                          |                 |  |  |                  |  |  |               |  |  |               |  |  |               |  |  |                 |  |  |
|  | ENGINEER'S SEAL<br>BROADKILL HUNDRED<br>SUSSEX COUNTY, DE  | JOB NO.: 21482<br>SCALE: AS SHOWN<br>DATE: 07/25/2024<br>DRAWN BY: GDC<br>DESIGN BY: SP<br>REVIEW BY: SP<br>SHEET: 02 OF 10 |                |            |                          |                 |  |  |                  |  |  |               |  |  |               |  |  |               |  |  |                 |  |  |
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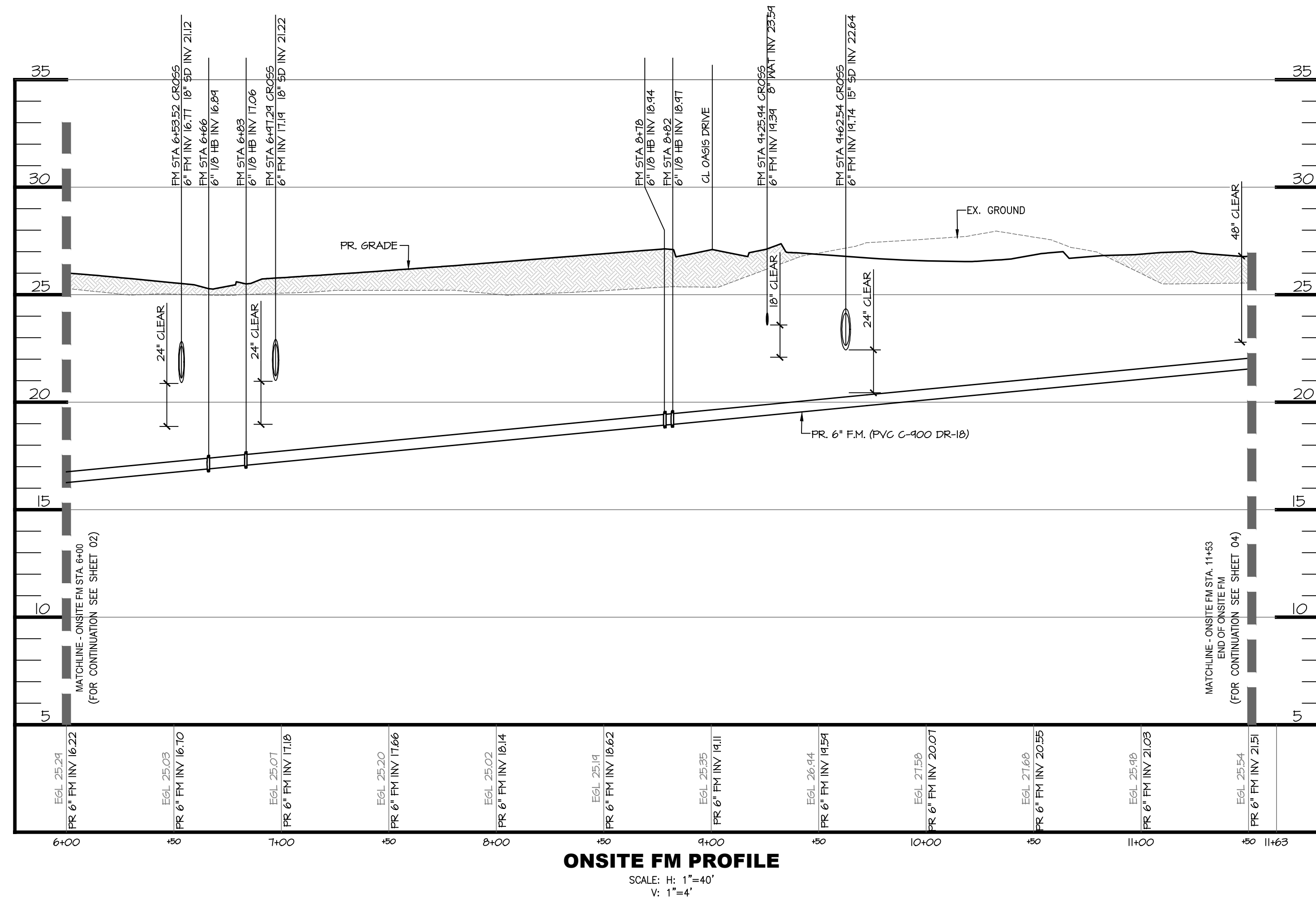




ONSITE FORCE MAIN PLAN VIEW  
 SCALE: 1" = 40'  
 0 40 80 120  
 Scale 1" = 40'

**LEGEND**

- PROPERTY BOUNDARY
- - - EX. RIGHT-OF-WAY
- - - EX. ADJACENT PROPERTY LINE
- - - PR. RIGHT OF WAY
- - - PR. LOT LINE/PARCEL LINE
- - - PR. EASEMENT
- - - BUILDING SETBACK LINE
- FP 100 YR FEMA FLOODPLAIN
- NW NON-JURISDICTIONAL WETLANDS
- WB WETLANDS BUFFER
- PR. LOT NUMBER
- PR. CURB & GUTTER
- PR. CONC SIDEWALK
- PR. HANDICAP RAMP
- PR. SANITARY LATERAL
- PR. SANITARY SEWER & MANHOLE
- PR. SANITARY FORCE MAIN
- PR. WATER LATERAL
- PR. WATER MAIN W/HYDRANT & TEE



ONSITE FM PROFILE  
 SCALE: H: 1"=40'  
 V: 1"=4'

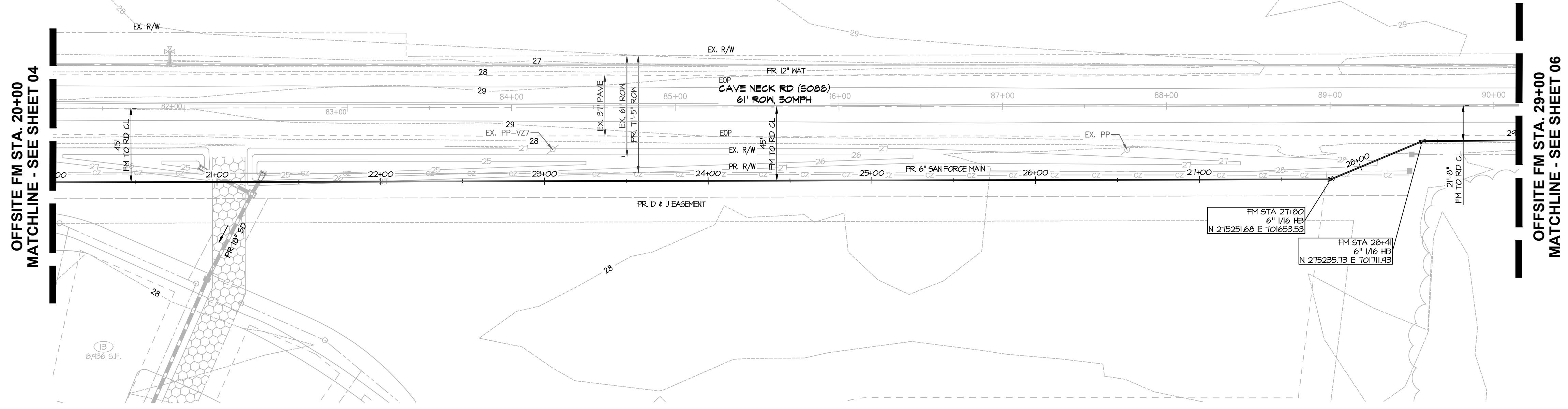
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| <b>FORCE MAIN PLAN AND PROFILE</b><br>FOR<br><b>PARADISE MEADOWS</b>   |                          |           |            |                          |   |                |                 |                  |               |               |               |                 |
| ENGINEER'S SEAL:   |                          |           |            |                          |   |                |                 |                  |               |               |               |                 |
| BROADKILL HUNDRED SUSSEX COUNTY, DE  |                          |           |            |                          |   |                |                 |                  |               |               |               |                 |
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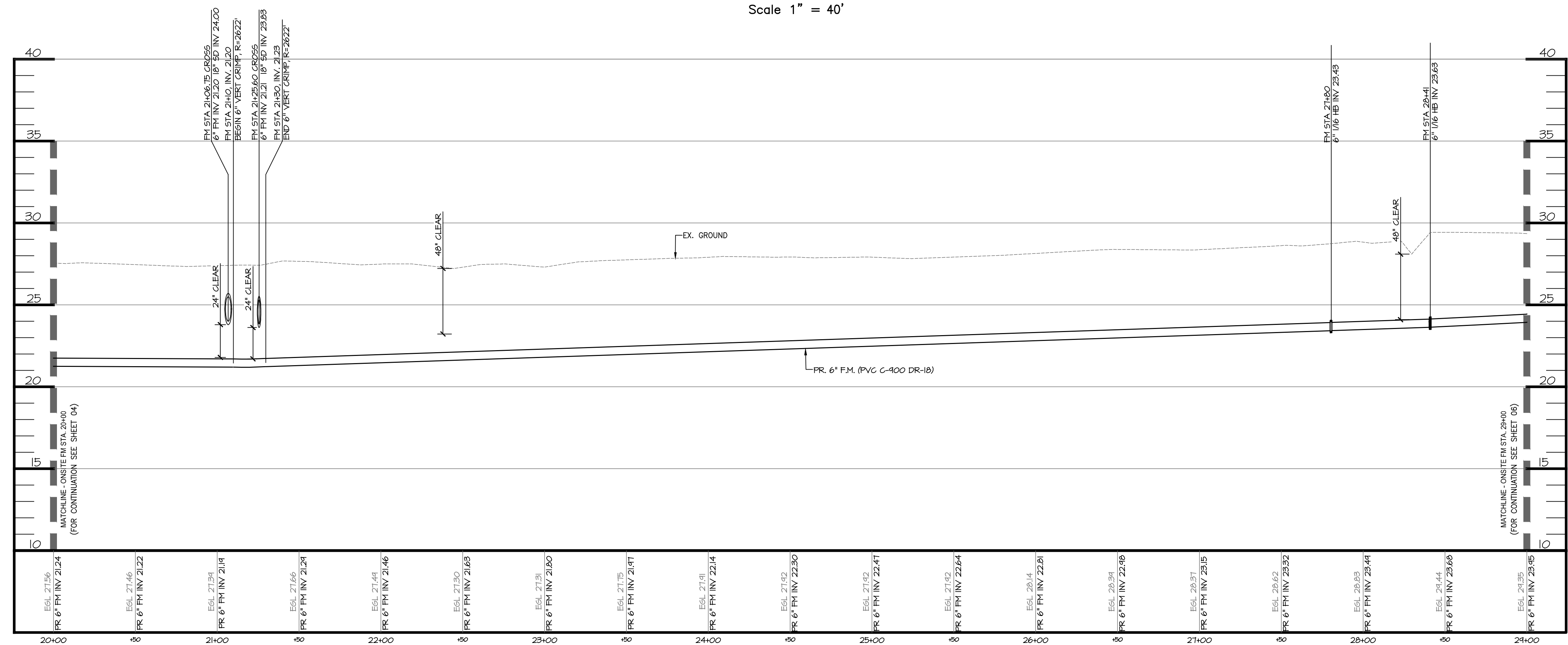
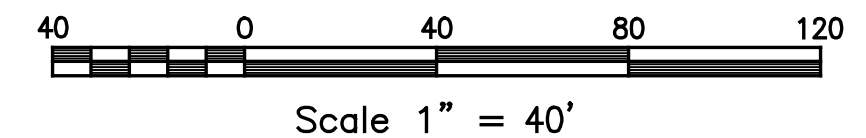
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OFFSITE FORCE MAIN PLAN VIEW  
SCALE: 1" = 40'



OFFSITE FM PROFILE  
SCALE: H: 1"=40'  
V: 1"=4'

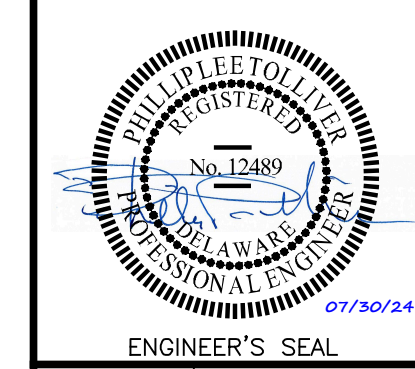
**LEGEND**

- PROPERTY BOUNDARY
- - - EX. RIGHT-OF-WAY
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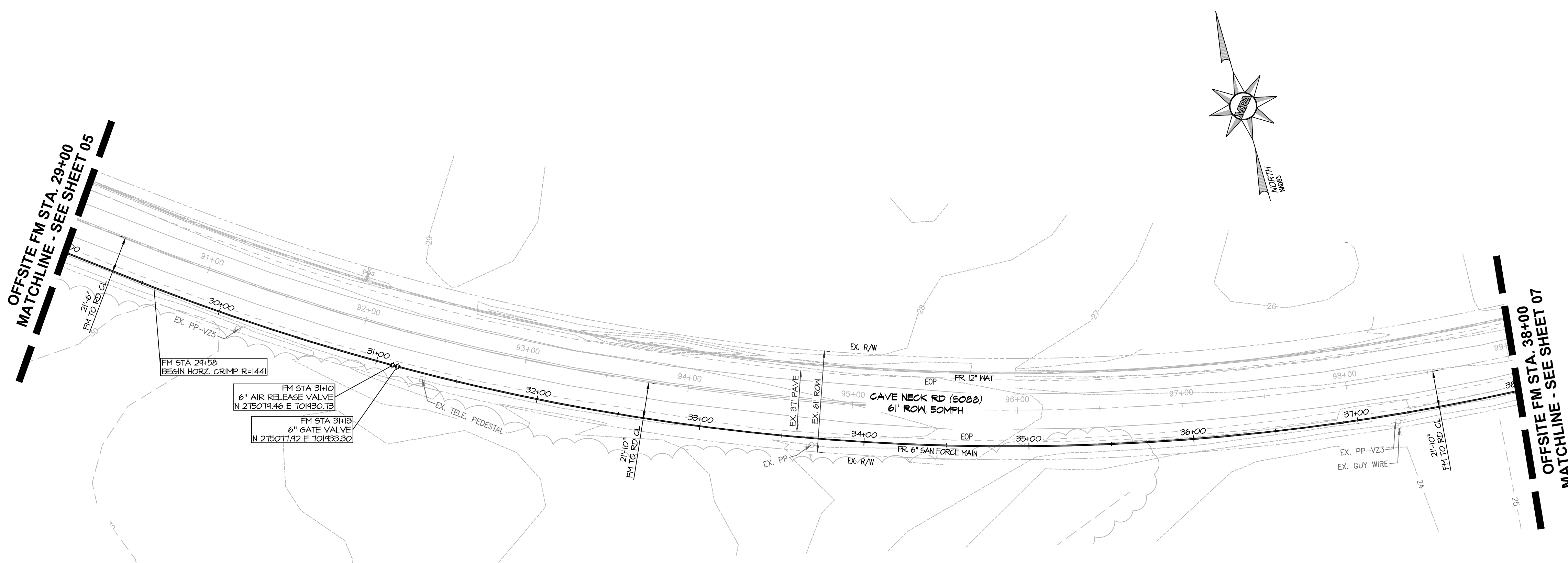


FORCE MAIN PLAN AND PROFILE  
FOR  
**PARADISE MEADOWS**

| DATE       | REVISIONS                | JOB NO.: 21482   |
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|            |                          | SHEET: 05 OF 10  |

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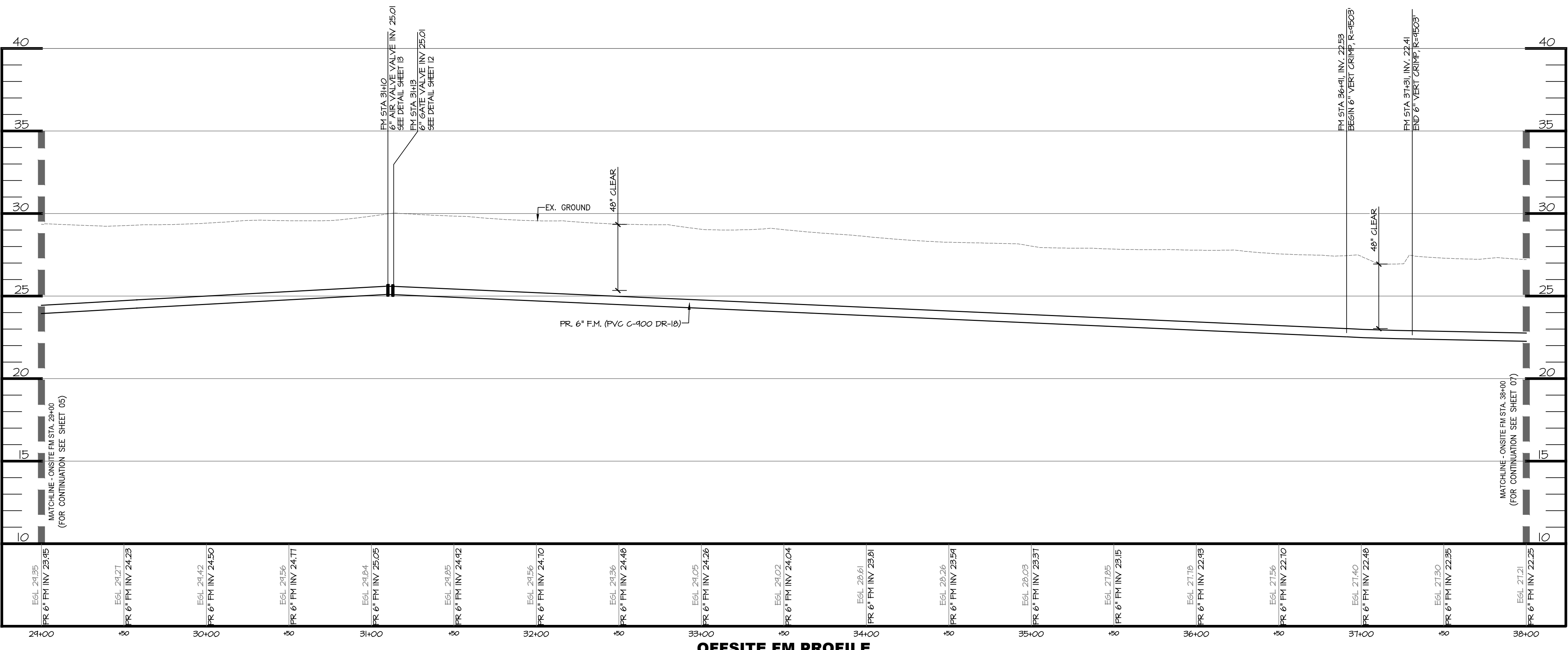




OFFSITE FORCE MAIN PLAN VIEW  
 SCALE: 1" = 40'

**LEGEND**

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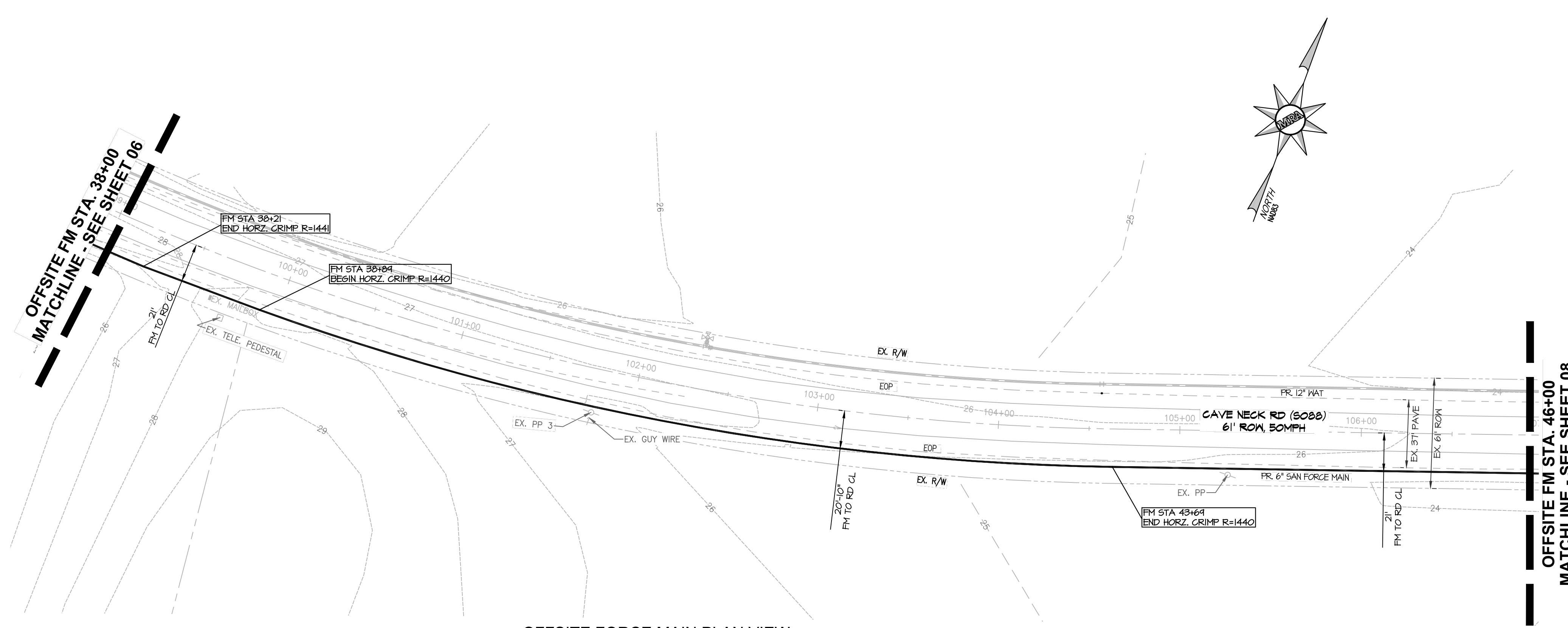


OFFSITE FM PROFILE  
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|  | ENGINEER'S SEAL<br><br>BROADKILL HUNDRED<br>SUSSEX COUNTY, DE        |                       |
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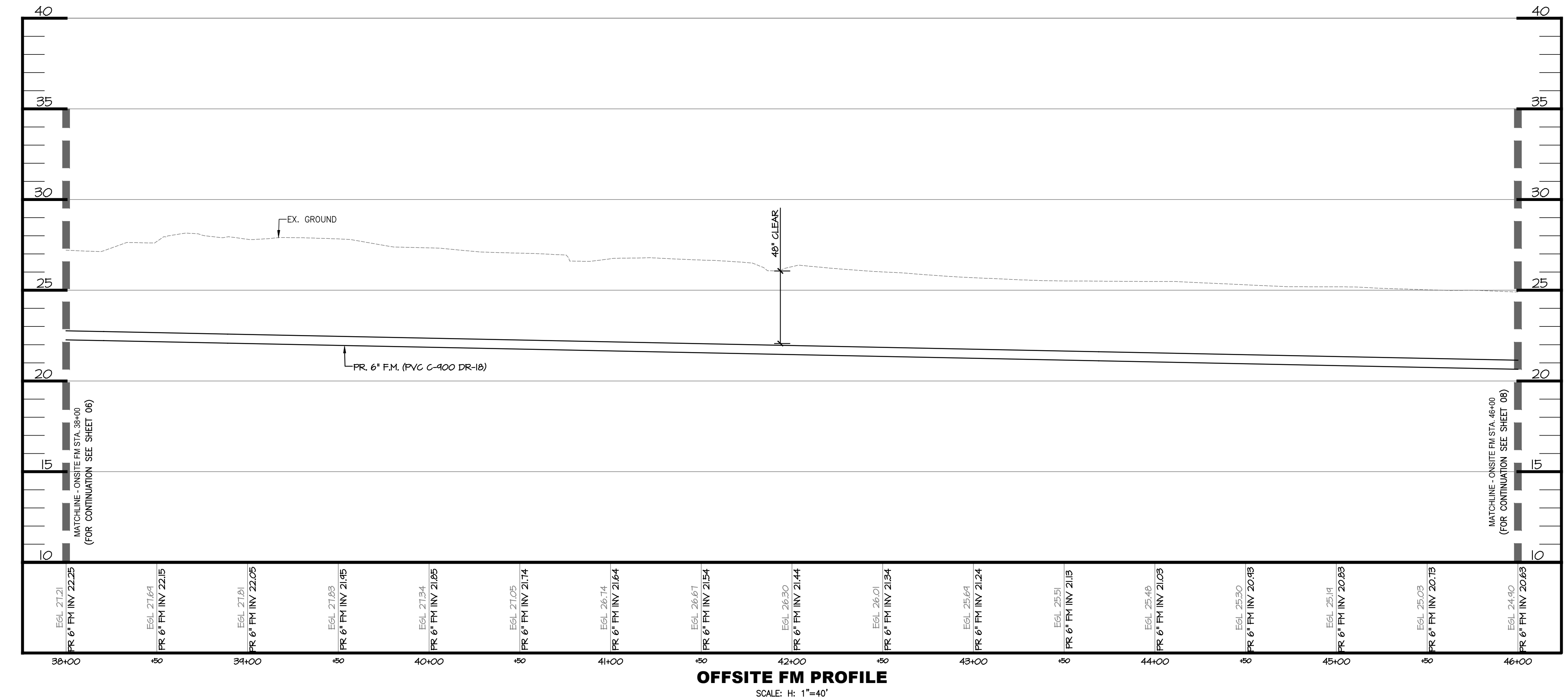
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OFFSITE FORCE MAIN PLAN VIEW  
 SCALE: 1" = 40'  
 0 40 80 120  
 Scale 1" = 40'

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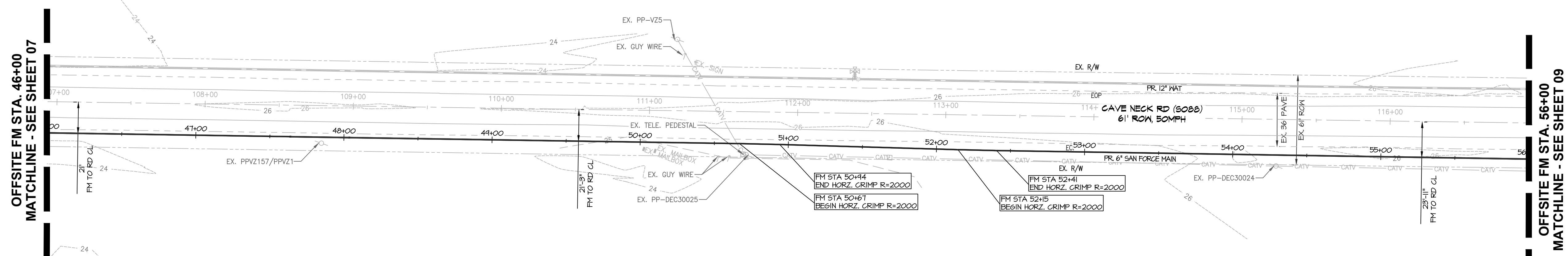
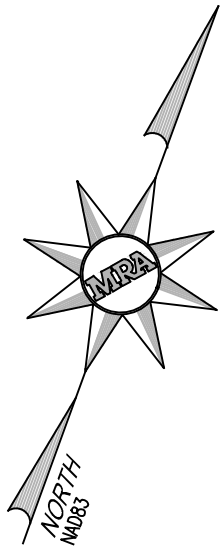
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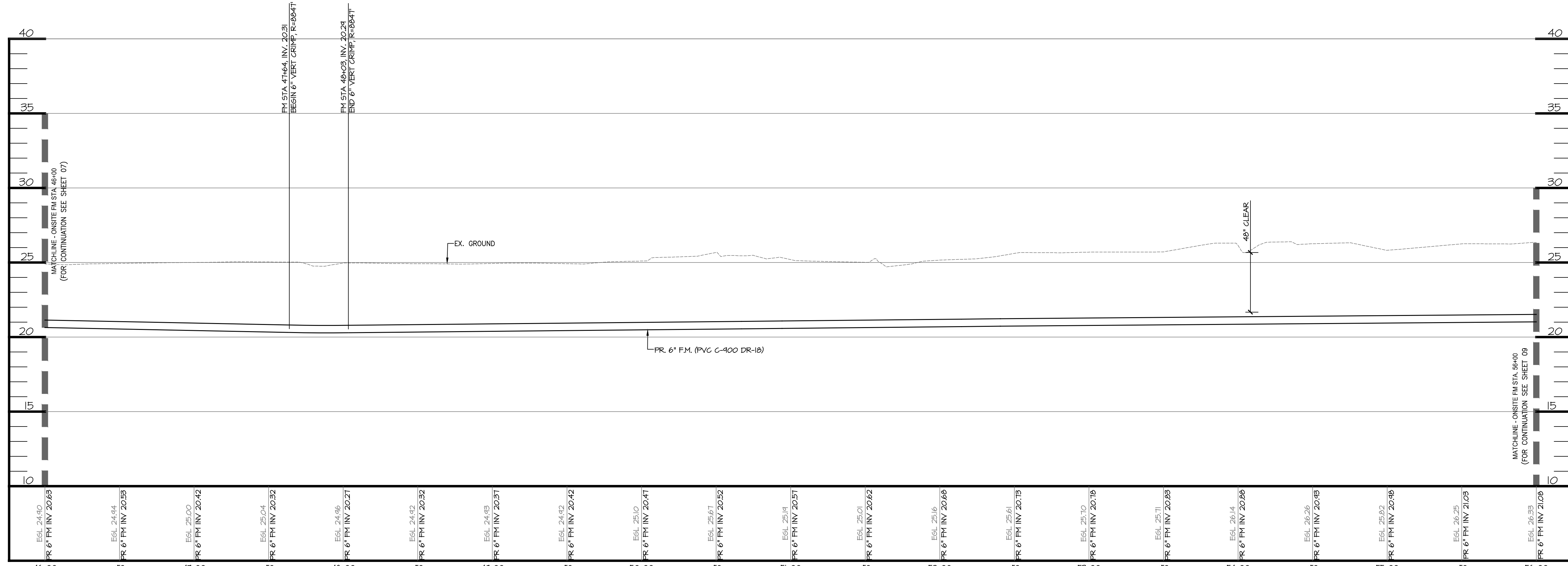




OFFSITE FORCE MAIN PLAN VIEW  
SCALE: 1" = 40'  
Scale 1" = 40'

**LEGEND**

- PROPERTY BOUNDARY
- - - EX. RIGHT-OF-WAY
- - - EX. ADJACENT PROPERTY LINE
- - - PR. RIGHT OF WAY
- - - PR. LOT LINE/PARCEL LINE
- - - PR. EASEMENT
- - - BUILDING SETBACK LINE
- FP 100 YR FEMA FLOODPLAIN
- NW NON-JURISDICTIONAL WETLANDS
- WB WETLANDS BUFFER
- PR. LOT NUMBER
- PR. CURB & GUTTER
- PR. CONC SIDEWALK
- PR. HANDICAP RAMP
- PR. SANITARY LATERAL
- PR. SANITARY SEWER & MANHOLE
- PR. SANITARY FORCE MAIN
- PR. WATER LATERAL
- PR. WATER MAIN W/HYDRANT & TEE

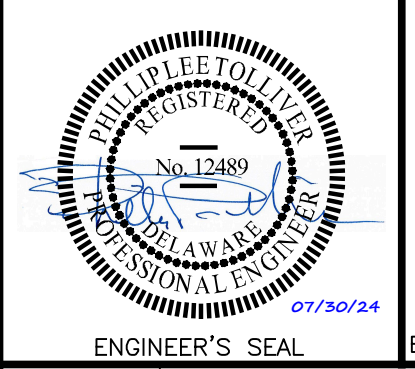


OFFSITE FM PROFILE  
SCALE: H: 1"=40'  
V: 1"=4'

**NOTE:**  
MAINTAIN A MINIMUM 10 FEET HORIZONTAL AND 18 INCHES VERTICAL SEPARATION BETWEEN WATER MAIN AND SANITARY SEWER PER TEN STATES STANDARDS.



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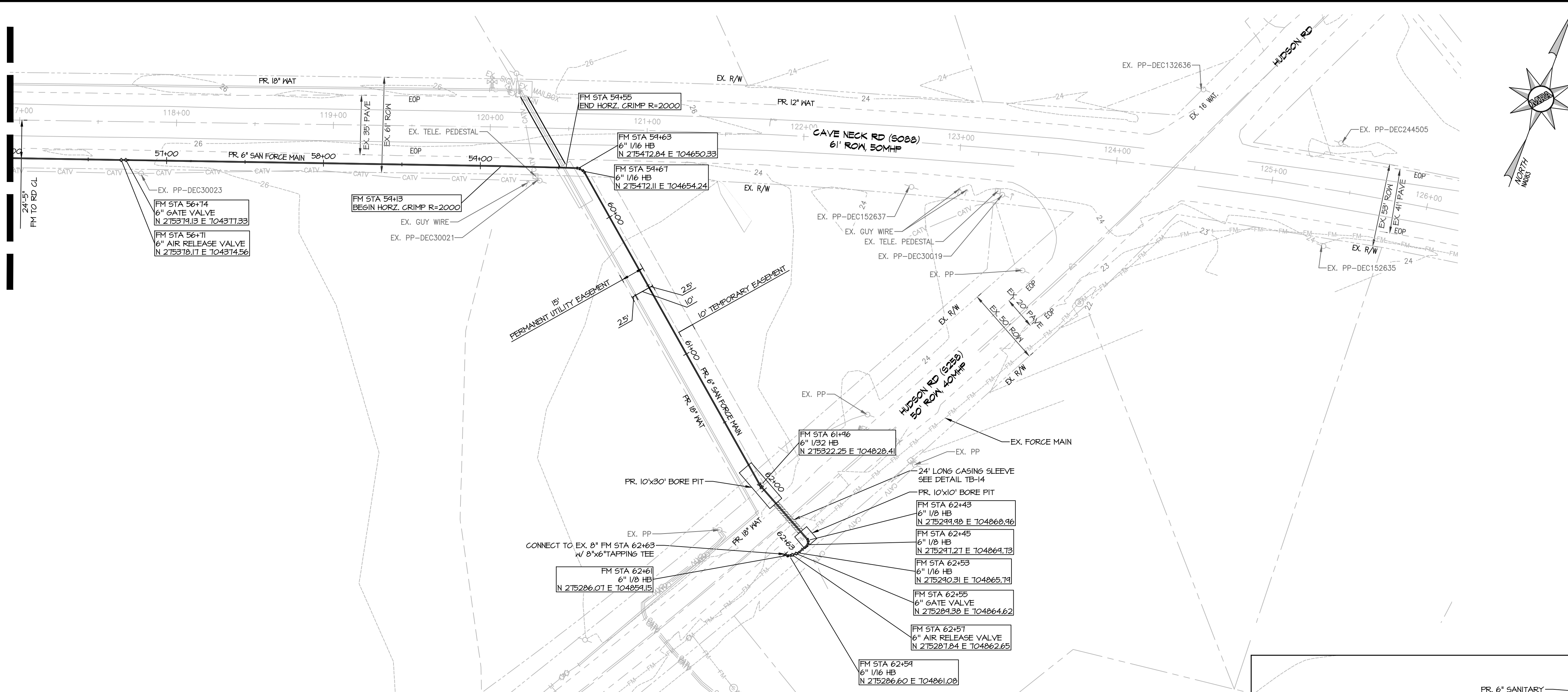
FORCE MAIN PLAN AND PROFILE  
FOR  
**PARADISE MEADOWS**

| DATE       | REVISIONS                | JOB NO.:21482    |
|------------|--------------------------|------------------|
| 03/21/2024 | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |
|            |                          | DATE: 07/25/2024 |
|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 08 OF 10  |

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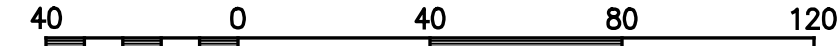


OFFSITE FM STA. 56+00  
MATCHLINE - SEE SHEET 08

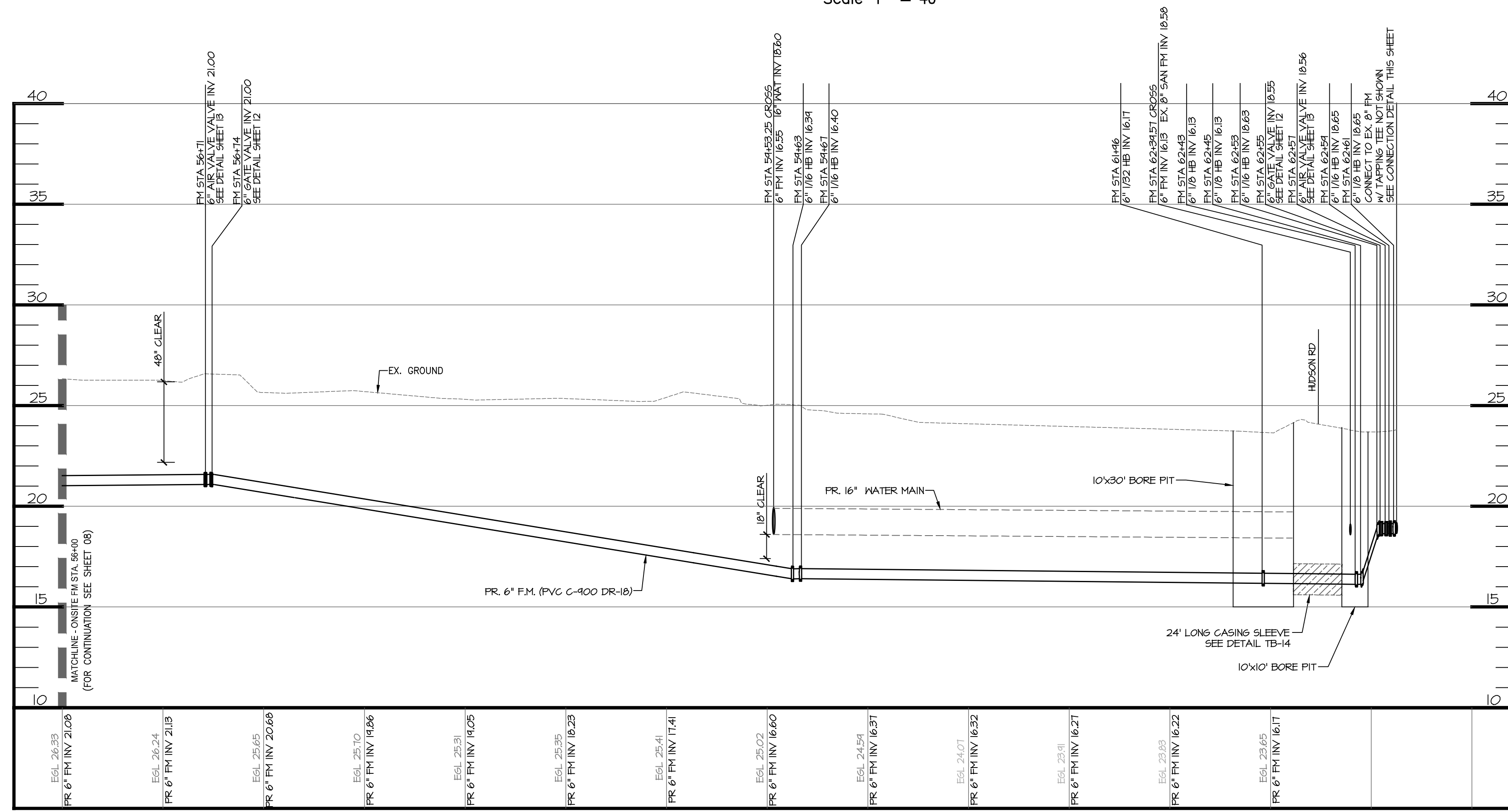


OFFSITE FORCE MAIN PLAN VIEW

SCALE: 1" = 40'



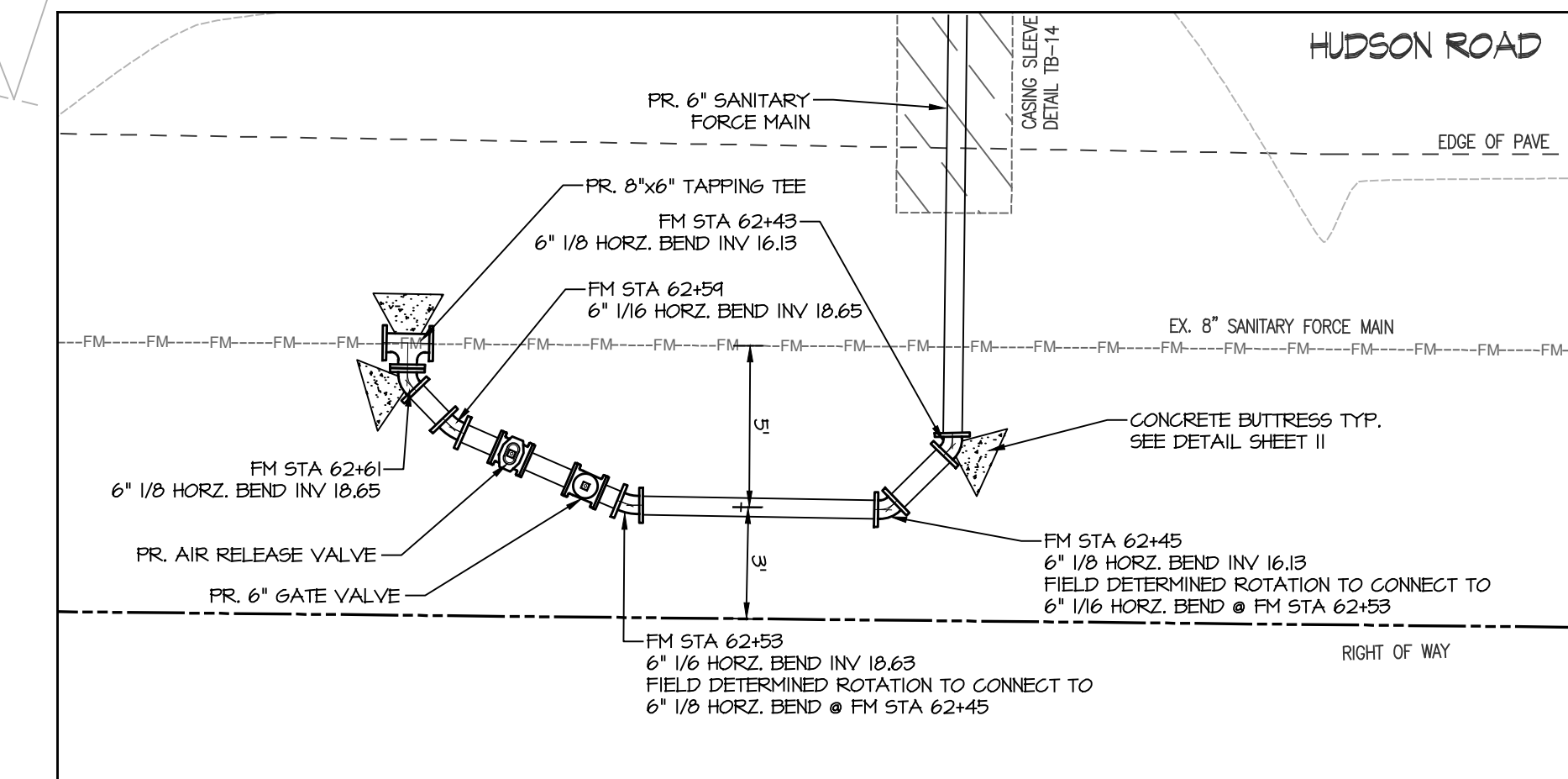
Scale 1" = 40'



OFFSITE FM PROFILE

SCALE: H: 1"=40'

V: 1"=4'



CONNECTION DETAIL

SCALE: 1" = 5'

NOTE:

MAINTAIN A MINIMUM 10 FEET HORIZONTAL AND 18 INCHES VERTICAL SEPARATION BETWEEN WATER MAIN AND SANITARY SEWER PER TEN STATES STANDARDS.

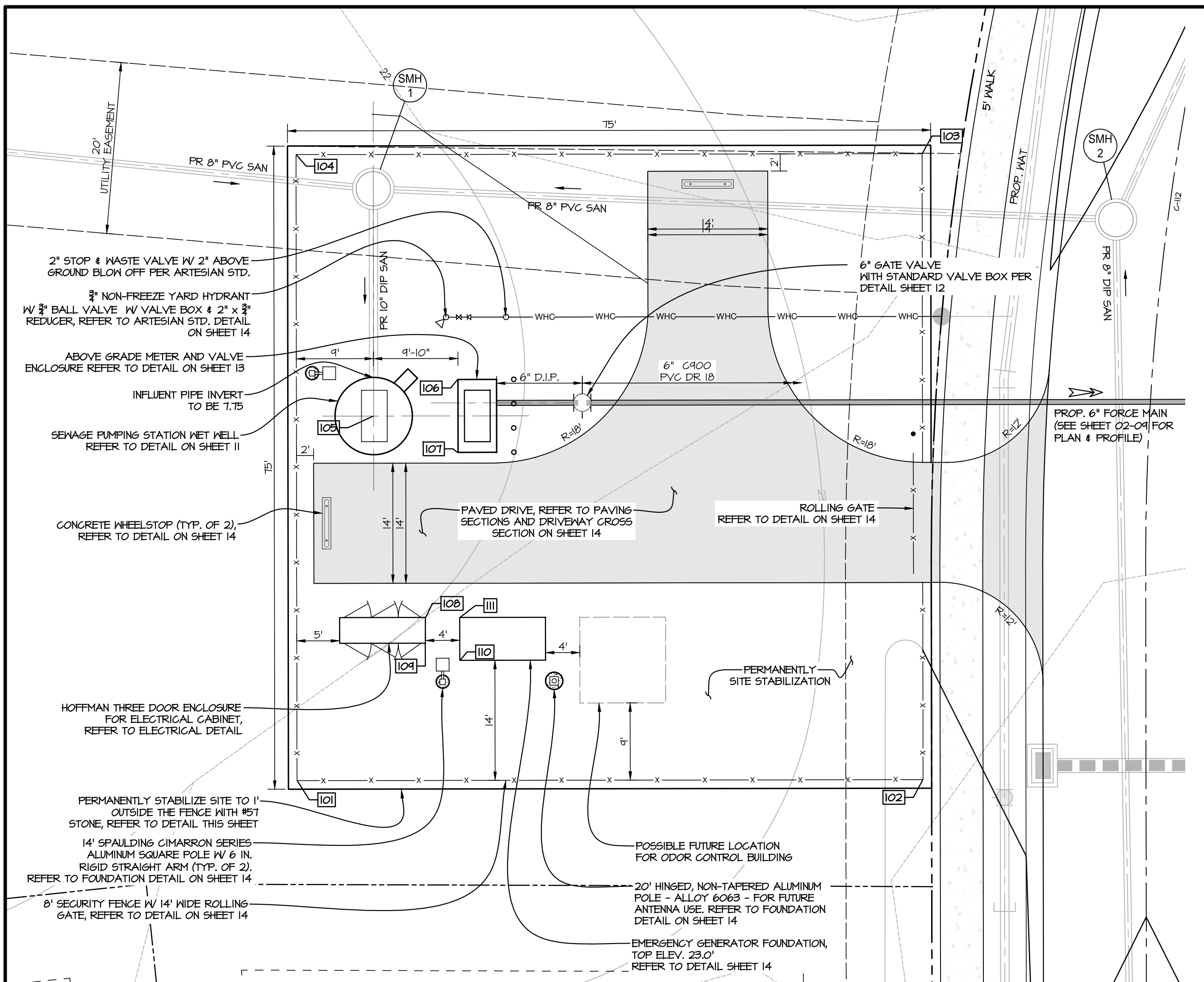
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**FORCE MAIN PLAN AND PROFILE**  
FOR  
**PARADISE MEADOWS**

|            |                          |                  |
|------------|--------------------------|------------------|
| DATE       | REVISIONS                | JOB NO.: 21482   |
| 03/21/2024 | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |
|            |                          | DATE: 07/25/2024 |
|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 04 OF 10  |

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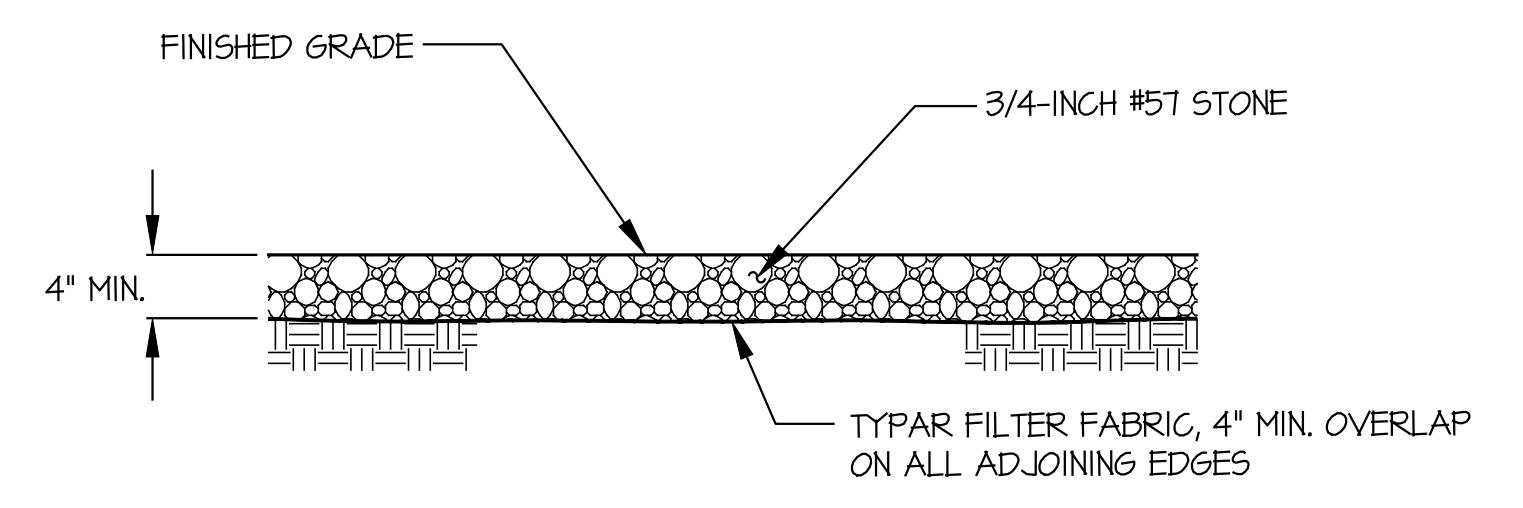




### STAKEOUT POINT TABLE

| POINT NUMBER | NORTHING   | EASTING    | DISCRPTION             |
|--------------|------------|------------|------------------------|
| 101          | 275,696.25 | 699,632.62 | FENCE CORNER           |
| 102          | 275,653.43 | 699,691.75 | FENCE CORNER           |
| 103          | 275,712.56 | 699,734.57 | FENCE CORNER           |
| 104          | 275,755.38 | 699,675.44 | FENCE CORNER           |
| 105          | 275,725.39 | 699,664.84 | WET WELL CENTER        |
| 106          | 275,723.07 | 699,675.30 | VALVE ENCLOSURE CORNER |
| 107          | 275,716.18 | 699,670.32 | VALVE ENCLOSURE CORNER |
| 108          | 275,702.84 | 699,655.92 | ELECTRICAL PAD CORNER  |
| 109          | 275,700.41 | 699,654.16 | ELECTRICAL PAD CORNER  |
| 110          | 275,696.45 | 699,656.22 | GENERATOR PAD CORNER   |
| 111          | 275,700.50 | 699,659.16 | GENERATOR PAD CORNER   |

**SEWAGE PUMP STATION PLAN**  
SCALE: 1"=10'



**DETAIL- PERMANENT SPS SITE STABILIZATION**  
NOT TO SCALE

**ANTI-FLOTATION CALCULATIONS**

| Wet well Structure Details   |       |      |
|------------------------------|-------|------|
| Wet well Outside Dimensions  | 9.00  | Feet |
| Wet well Inside Dimensions   | 8.00  | Feet |
| Wet well Top Slab Elevation  | 23.00 | Feet |
| Wet well Invert Elevation    | 2.75  | Feet |
| Extended Base Slab Diameter  | 11.00 | Feet |
| Extended Base Slab Thickness | 1.00  | Feet |
| Top Slab Thickness           | 0.50  | Feet |

| Calculate Total Volume of Wet well Structure |      |    |
|--|------|----|
| Volume of Wet well Riser Sections=           | 1288 | cf |
| Volume of Wet well Extended Base=            | 95   | cf |
| Total Volume of Wet well Structure=          | 1383 | cf |

| Calculate Total Volume of Water Displaced                                   |       |     |
|---|-------|-----|
| H <sub>2</sub> O Displaced = (Volume of Wet well Structure) * (62.4 lbs/cf) |       |     |
| H <sub>2</sub> O Displaced=   | 86273 | lbs |

| Calculate Weight of Wet well Components |          |        |
|---|----------|--------|
| Section                                 | Total Ht | Weight |
| Top Slab Thickness (ft.)                | 0.50     | 4771   |
| Riser - Total Vertical Ft.              | 20.25    | 40556  |
| Base Slab Thickness (ft.)               | 1.00     | 14255  |
| Totals=                                 | 21.75    | 59582  |
| Total Weight of Concrete in Wet well=   |          | 59582  |

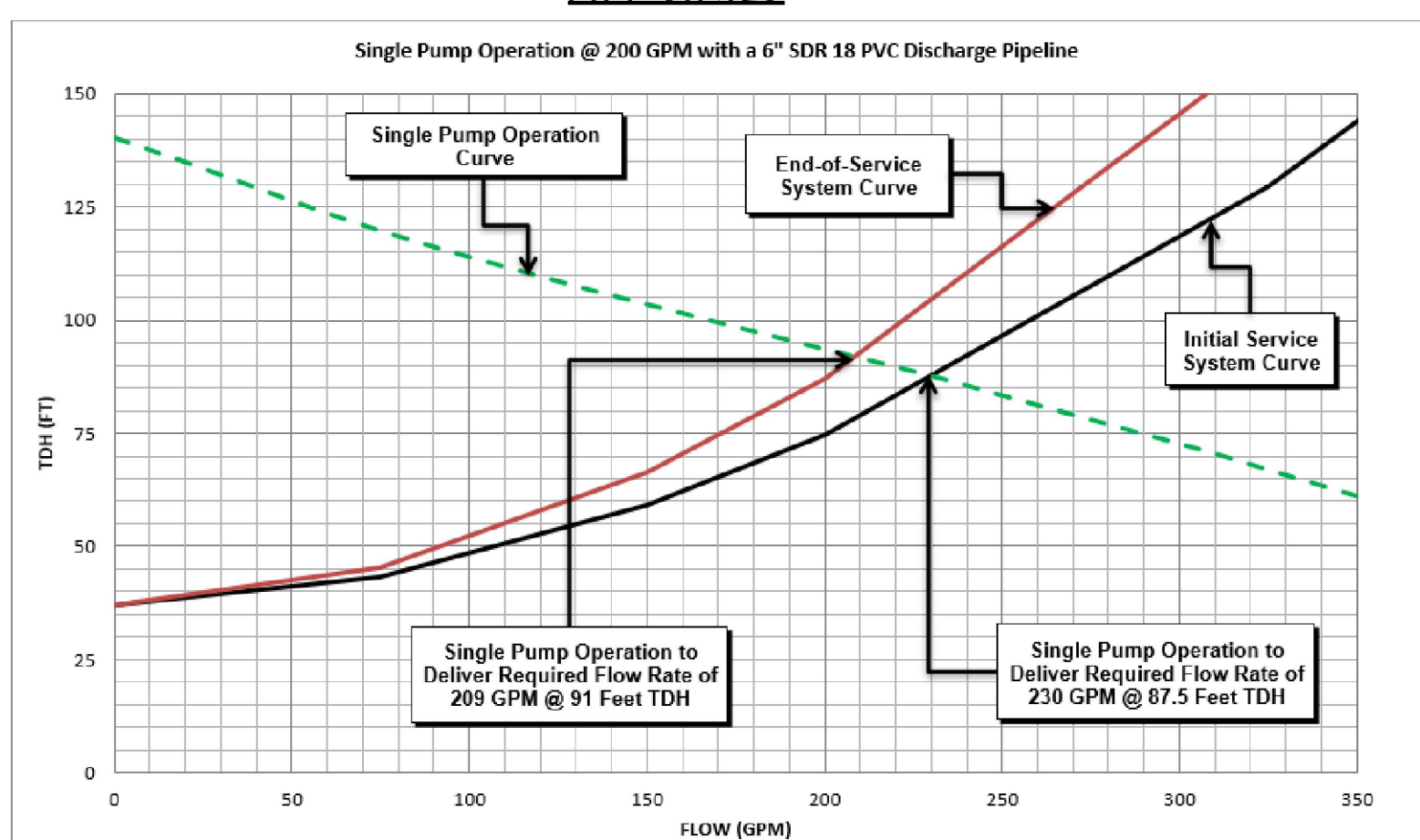
  

| Calculate Submerged Weight of Soil Above Extended Base/Footing |     |        |
|--|-----|--------|
| Total Area of Extended Base                                    | 95  | sf     |
| Total Area of Wet well Riser                                   | 64  | sf     |
| Area of Extended Base less Wet well                            | 31  | sf     |
| Height of Soil Above Extended Base                             | 20  | ft     |
| Volume of Soil Above Extended Base                             | 620 | cf     |
| t of Soil Above Extended Base (estimated)                      | 50  | lbs/cf |
| Total Weight of Soil Above Extended Base                       |     | 31023  |

| Flotation Protection Required?                             |       |     |
|--|-------|-----|
| Weight of Concrete and Weight of Soil Above Extended Base: | 90605 | lbs |
| Weight of Water Displaced by Wet Well:                     | 86273 | lbs |
| Flotation Protection Required?                             |       | NO  |

**PUMP CURVES**



**DESIGN FLOW CALCULATION**

**Projected Wastewater Flow Calculations**

| Establishment            | Unit Value (Gal/Dav/Unit) | Unit Type         | # of Units | Discharge, GPD |
|--------------------------|---------------------------|-------------------|------------|----------------|
| Residential              | 300                       | single family lot | 191        | 57,300.00      |
| Average Daily Flow (GPD) |                           |                   |            | 57,300         |
| Average Daily Flow (GPM) |                           |                   |            | 40             |

**Design Pumping Flow Rate**

|                                 |         |
|---------------------------------|---------|
| Design Peak Factor =            | 3.5     |
| Peak Flow =                     | 200,550 |
| Minimum Pumping Rate Required = | 139     |
| Design Pumping Rate =           | 200.00  |

**Cycle Time & Wet Well Geometry**

|                                  |      |
|----------------------------------|------|
| Target Cycles Per Hour =         | 5.00 |
| Check Cycles Per Hour: =         | OK   |
| Time =                           | 12.0 |
| Required Volume =                | 382  |
| Pick Wet Well Diameter (FT) =    | 8.00 |
| Pick Wet Well Cycle (Vert. FT) = | 1.25 |
| Volume in Cycle (GAL) =          | 470  |

**Wet Well Invert & Float Elevations**

|                                       |       |
|---------------------------------------|-------|
| Wet well Dia. (FT) =                  | 8     |
| Top Elev =                            | 23.00 |
| Gnd Elev =                            | 22.50 |
| Wet Well Discharge Elevation (ft) =   | 18.50 |
| Influent Sewer Invert Elev =          | 7.75  |
| Alarm =                               | 7.00  |
| Lag On =                              | 6.50  |
| Lead On =                             | 6.00  |
| Pumps Off =                           | 4.75  |
| Bottom Elev* =                        | 2.75  |
| *As required for complete submergence |       |
| Alarm Depth below Invert Check =      | OK    |
| Depth of Wet Well (ft) =              | 20.25 |

**Proposed Force Main Sizing & Velocity Check**

|   |                   |
|---|-------------------|
| Design Pump Rate (gpm) =                  | 200               |
| Select Force Main Pipe =                  | 6" C900 PVC DR 18 |
| Select Force Main Outside Diameter (in) = | 6.90              |
| Select Force Main Inside Diameter (in) =  | 6.09              |
| Velocity (fps) =                          | 2.20              |
| Meets Minimum Velocity Requirement? =     | OK                |
| Meets Maximum Velocity Requirement? =     | OK                |
| Line Length (ft) =                        | 6,334.00          |
| Account for Minor Losses =                | 5%                |
| Equiv Length (ft) =                       | 6,651             |

**Existing Force Main Sizing & Velocity Check**

|   |                               |
|---|-------------------------------|
| Design Pump Rate (gpm) =                  | 200                           |
| Select Force Main Pipe =                  | 8" C900 PVC DR 18             |
| Select Force Main Outside Diameter (in) = | 9.05                          |
| Select Force Main Inside Diameter (in) =  | 7.98                          |
| Velocity (fps) =                          | 1.28                          |
| Meets Minimum Velocity Requirement? =     | Velocity Must Be Greater Than |
| Meets Maximum Velocity Requirement? =     | OK                            |
| Line Length (ft) =                        | 19,200.00                     |
| Account for Minor Losses =                | 5%                            |
| Equiv Length (ft) =                       | 20,160                        |

**PS Piping and Valve Vault Sizing & Velocity Check**

|   |                 |
|---|-----------------|
| Design Pump Rate (gpm) =                  | 200             |
| Select Force Main Pipe =                  | 4" Class 53 DIP |
| Select Force Main Outside Diameter (in) = | 4.80            |
| Select Force Main Inside Diameter (in) =  | 4.16            |
| Velocity (fps) =                          | 4.72            |
| Meets Minimum Velocity Requirement? =     | OK              |
| Meets Maximum Velocity Requirement? =     | OK              |

**Minor Losses Calculation**

| Fitting Description                              | Number of Fittings | L/D Ratio | Equivalent Length |
|--|--------------------|-----------|-------------------|
| 45 bend  | 1                  | 16        | 6                 |
| 90 bend  | 3                  | 30        | 31                |
| 22.5 bend  | 0                  | 9         | 0                 |
| Branch Tee Flow                                  | 1                  | 60        | 21                |
| Check valve                                      | 1                  | 135       | 47                |
| Plug Valve                                       | 1                  | 17        | 6                 |
| Magnetic Flow Meter                              | 0                  | 5         | 0                 |
| Equivalent Fitting Length (ft) =                 |                    |           | 110               |
| Wet Well & Valve Vault Piping Length (ft) =      |                    |           | 100.00            |
| Total Equivalent Pump Station Pipe Length (ft) = |                    |           | 210               |

**Static Head from Wet Well to Discharge Manhole**

|   |       |
|---|-------|
| Discharge Point Ground Elevation (ft) = | 42.00 |
| Depth of Discharge Below Grade (ft) =   | 0.00  |
| Discharge Point Invert Elevation (ft) = | 42.00 |
| Forcemain High Elevation (ft) =         | 42.00 |
| "Pump Off" Elevation (ft) =             | 4.75  |
| Static Head (ft) =                      | 37.25 |

**Total Dynamic Head Calculation**

where:  
 H<sub>f</sub> = head loss due to friction (ft)  
 L = length of pipe (ft)  
 Q = flow rate (gpm)  
 C = Hazen-Williams coefficient  
 I.D. = inside diameter (in)

Initial Service C =  $\frac{140}{125}$

**Initial Service System Curve Data**

| Flow (gpm) | Static Head (ft) | Proposed  |                  | Existing  |                  | TDH (ft) |
|------------|------------------|-----------|------------------|-----------|------------------|----------|
|            |                  | Forcemain | PS & Valve Vault | Forcemain | PS & Valve Vault |          |
| 0          | 37.3             | 0.0       | 0.0              | 0.0       | 0.0              | 37       |
| 75         | 37.3             | 3.3       | 0.1              | 2.7       | 0.1              | 43       |
| 150        | 37.3             | 12.0      | 0.3              | 9.8       | 0.2              | 59       |
| 200        | 37.3             | 20.4      | 0.5              | 16.6      | 0.3              | 75       |
| 325        | 37.3             | 50.2      | 1.3              | 40.8      | 0.7              | 130      |
| 400        | 37.3             | 73.7      | 1.9              | 60.0      | 1.0              | 173      |

**End-of-Service System Curve Data**

| Flow (gpm) | Static Head (ft) | Proposed  |                  | Existing  |                  | TDH (ft) |
|------------|------------------|-----------|------------------|-----------|------------------|----------|
|            |                  | Forcemain | PS & Valve Vault | Forcemain | PS & Valve Vault |          |
| 0          | 37.3             | 0.0       | 0.0              | 0.0       | 0.0              | 37       |
| 75         | 37.3             | 4.4       | 0.1              | 3.6       | 0.1              | 45       |
| 150        | 37.3             | 16.0      | 0.5              | 13.0      | 0.3              | 67       |
| 200        | 37.3             | 27.2      | 0.8              | 22.1      | 0.5              | 87       |
| 325        | 37.3             | 66.8      | 2.0              | 54.3      | 1.0              | 160      |
| 400        | 37.3             | 98.0      | 2.9              | 79.8      | 1.5              | 218      |

PUMP SELECTION: FLYGT MODEL NP-3127 SH 3, 12 HP, 3PH, 3,600 RPM, Duty Point: 200 gpm at 87 ft TDH

**PUMP OPERATION CHECK**

**Proposed Operational Point No.1**

|        |     |     |
|--------|-----|-----|
| Flow = | 209 | GPM |
| TDH =  | 91  | ft  |

**Check Wet well Cycle Times**

| Wet well Diameter (feet)   | Wet well Area (gal / VF) | Wet well Cycle (ft) | Wet well Volume (gal) |         |
|--|--------------------------|---------------------|-----------------------|---------|
| 8.0  | 376                      | 1.3                 | 470                   |         |
| Fill = $\frac{\text{Wet well Volume}}{\text{ADF}}$                   |                          |                     | 11.8                  | minutes |
| Run = $\frac{\text{Wet well Volume}}{\text{Pump Rate} - \text{ADF}}$ |                          |                     | 2.8                   | minutes |

|                             |      |               |
|-----------------------------|------|---------------|
| Total =                     | 14.6 | minutes       |
| Cycle Time =                | 4.1  | Cycles / Hour |
| Meets Minimum Cycle Time? = | OK   |               |
| Meets Maximum Cycle Time? = | OK   |               |

**Proposed Operational Point No.2**

|        |      |     |
|--------|------|-----|
| Flow = | 230  | GPM |
| TDH =  | 87.5 | ft  |

**Check Wet well Cycle Times**

| Wet well Diameter (feet)   | Wet well Area (gal / VF) | Wet well Cycle (ft) | Wet well Volume (gal) |         |
|--|--------------------------|---------------------|-----------------------|---------|
| 8.0  | 376                      | 1.3                 | 470                   |         |
| Fill = $\frac{\text{Wet well Volume}}{\text{ADF}}$                   |                          |                     | 11.8                  | minutes |
| Run = $\frac{\text{Wet well Volume}}{\text{Pump Rate} - \text{ADF}}$ |                          |                     | 2.5                   | minutes |

|                             |      |               |
|-----------------------------|------|---------------|
| Total =                     | 14.3 | minutes       |
| Cycle Time =                | 4.2  | Cycles / Hour |
| Meets Minimum Cycle Time? = | OK   |               |
| Meets Maximum Cycle Time? = | OK   |               |

**MIRA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 12489  
07/20/24

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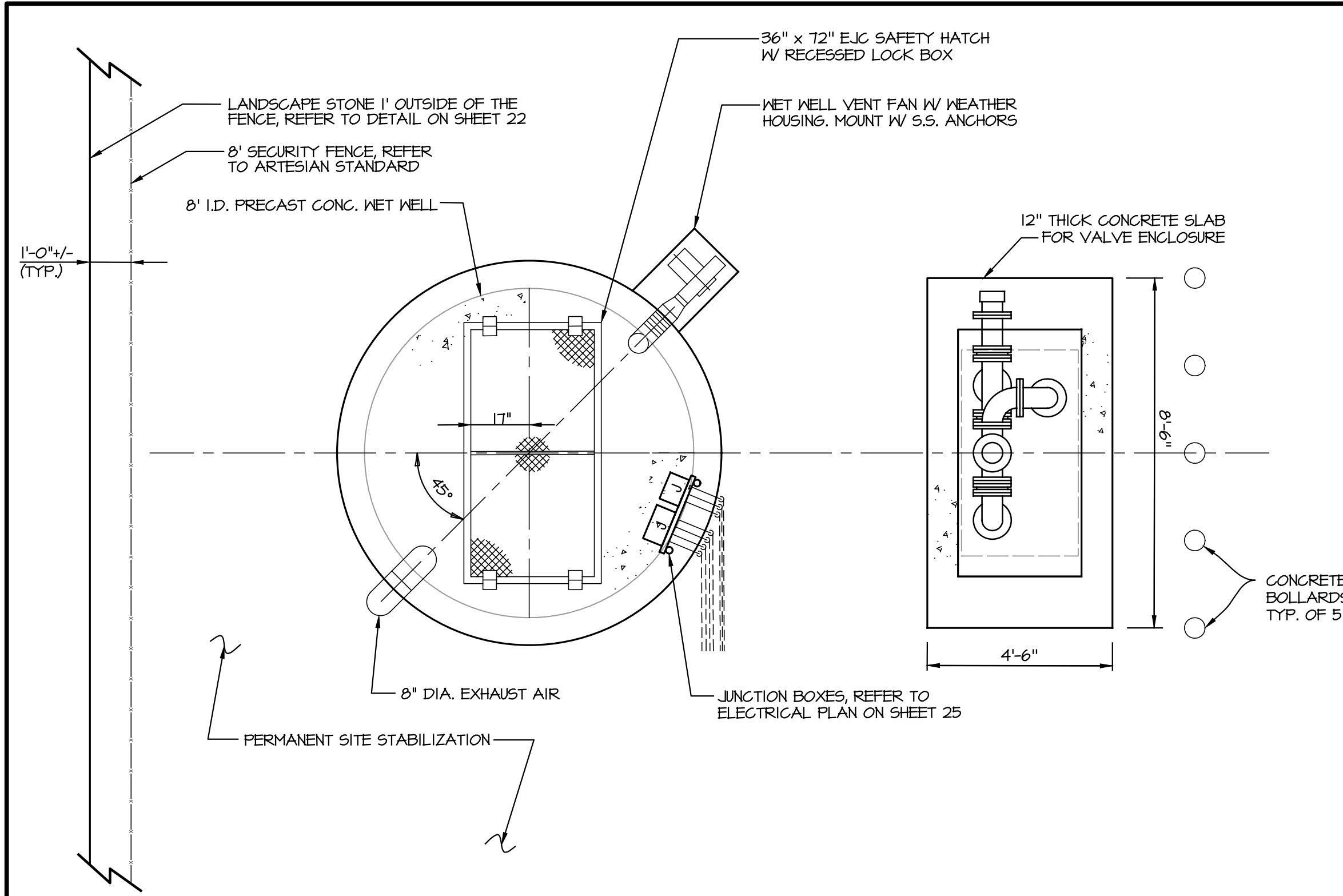
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**SEWAGE PUMPING STATION  
SITE PLAN  
FOR  
PARADISE MEADOWS**

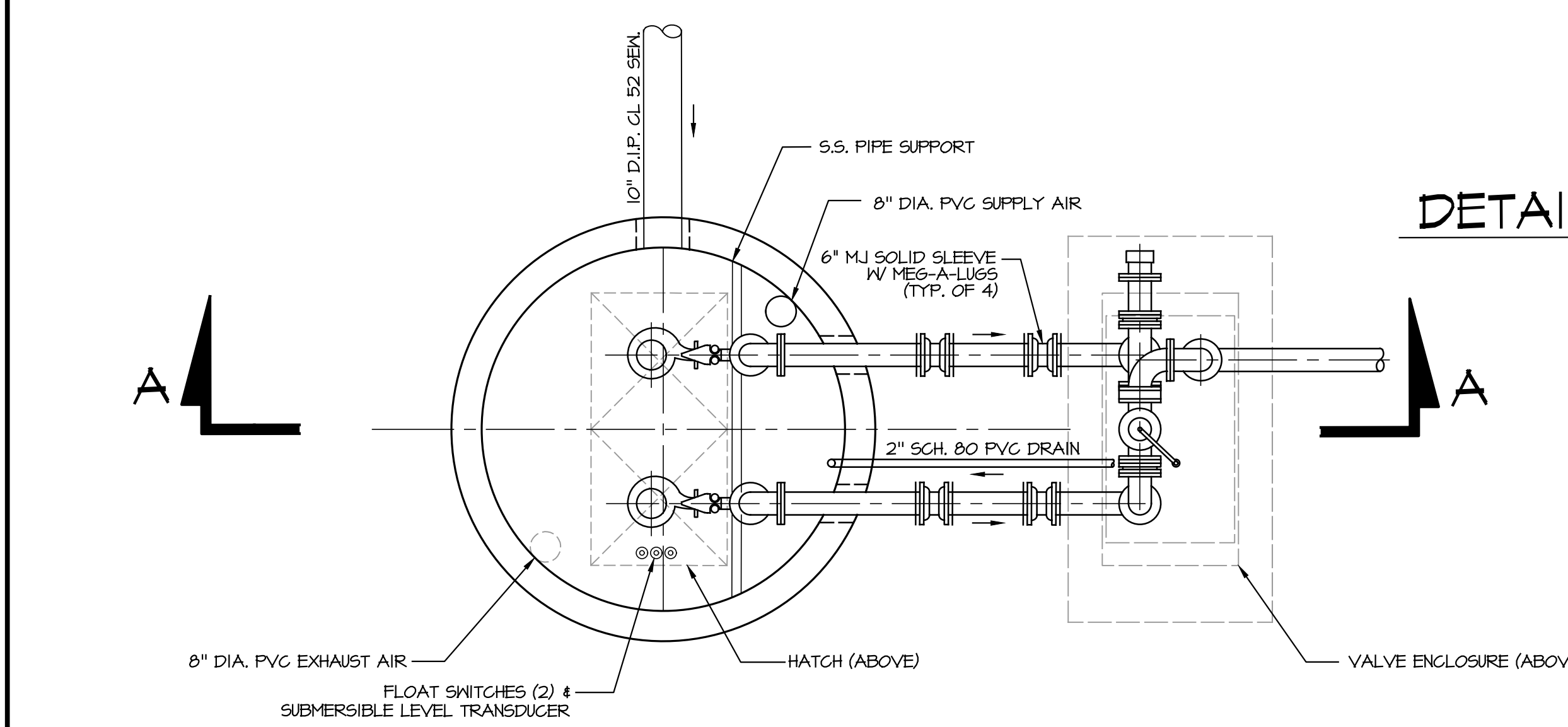
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| 03/21/2024 | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |
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|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 10 OF 10  |

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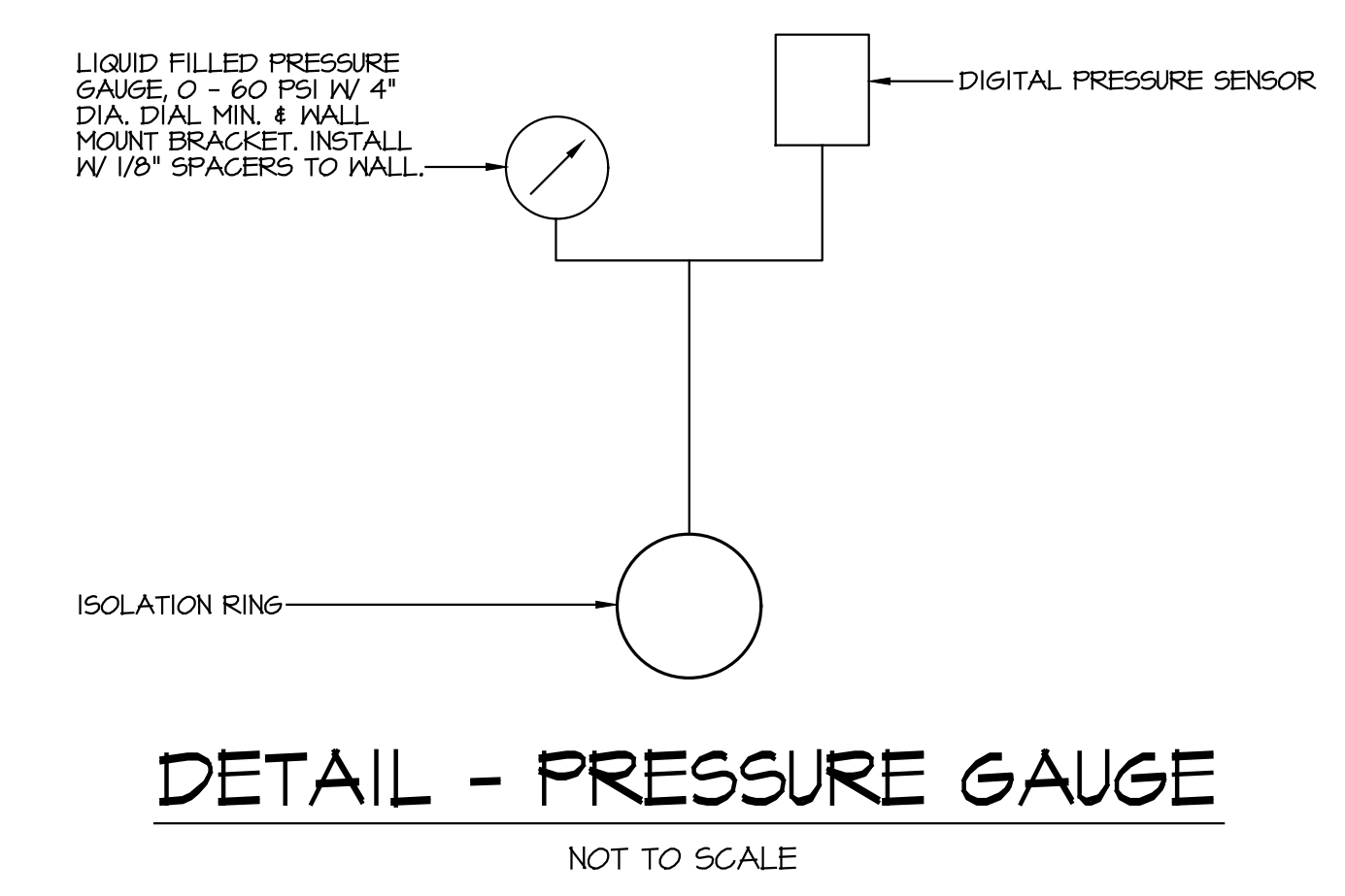




**TOP PLAN**  
SCALE: 3/8"=1'-0"



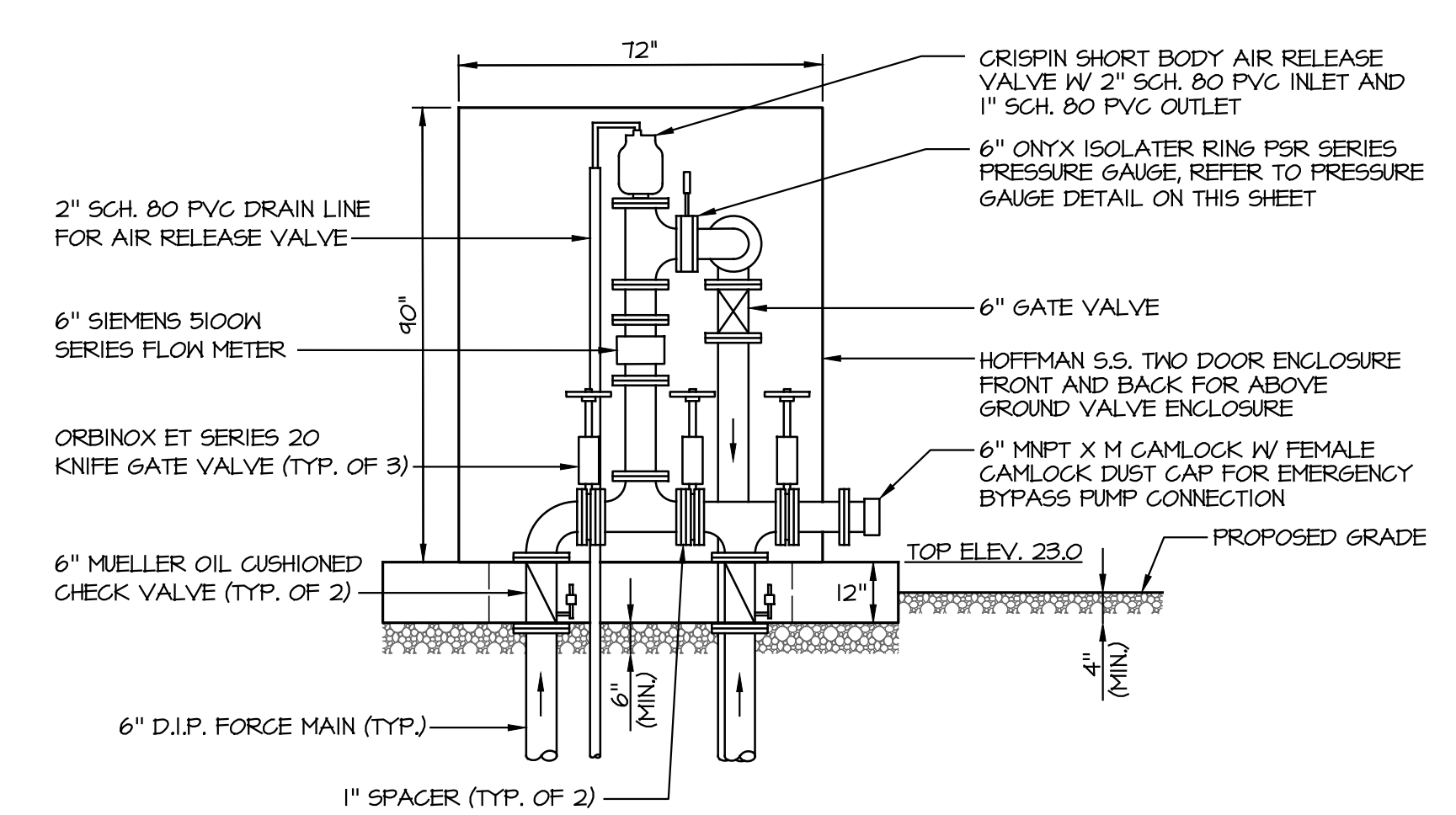
**LOWER PLAN**  
SCALE: 3/8"=1'-0"



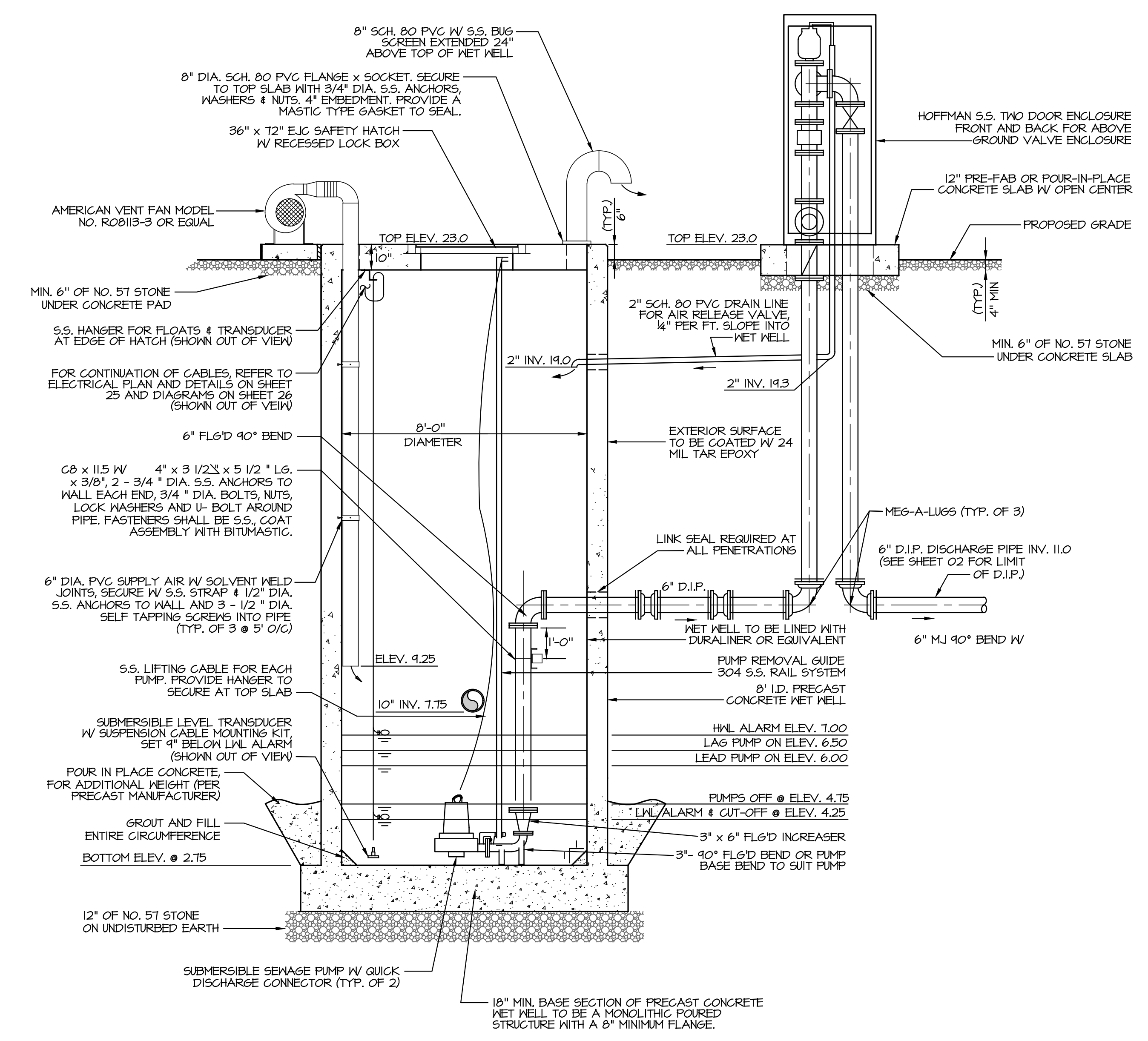
**DETAIL - PRESSURE GAUGE**  
NOT TO SCALE

- NOTES:**
1. WET WELL AND VALVE ENCLOSURE SHALL BE DESIGNED FOR H2O LOADINGS, AND A MINIMUM ANTI-FLOTTATION SAFETY FACTOR OF 1.1.
  2. ALL ACCESS HATCHES, FRAMES & COVERS, AND FLOOR BOXES SHALL BE DESIGNED FOR 300 PSF LOADING.
  3. ALL PIPE CLAMPS & HARDWARE IN THE WET WELL & VALVE VAULT SHALL BE TYPE 304 STAINLESS STEEL.
  4. WEIGHTED-TYPE SUSPENDED FLOAT SWITCHES - (2 REQ'D) FOR SECONDARY CONTROL, (PRIMARY CONTROL IS A SUBMERSIBLE LEVEL TRANSDUCER)


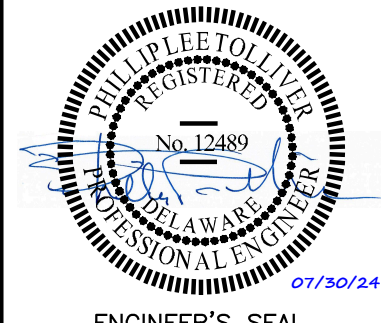
**DETAIL - SEWAGE PUMPING STATION**  
SCALE: 3/8"=1'-0"



**ABOVE GRADE VALVE ENCLOSURE WITH BYPASS**  
SCALE: 3/8"=1'-0"

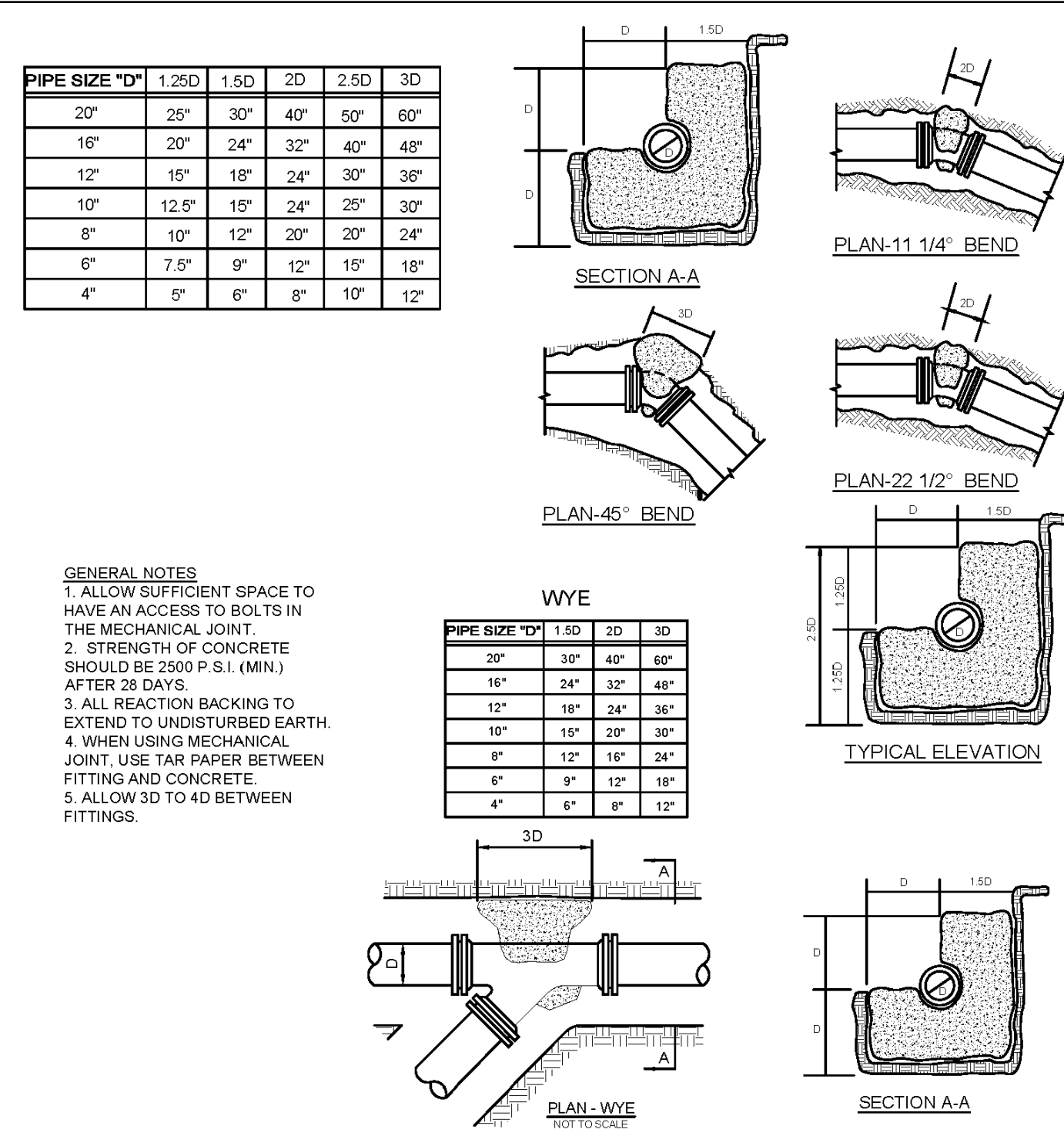


**SECTION A-A**  
SCALE: 3/8"=1'-0"

|   |                                       |   |
|---|---------------------------------------|---|
|  |                                       | <b>MORRIS &amp; RITCHIE ASSOCIATES, INC.</b><br>ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS<br>18 BOULDEN CIRCLE, SUITE 36<br>WILMINGTON, DE 19720<br>(302) 326-2200<br>FAX: (302) 326-2399<br>MRAGTA.COM |
|  |                                       | <b>SEWAGE PUMPING STATION MECHANICAL DETAILS FOR PARADISE MEADOWS</b>   |
| DATE<br>03/21/2024  | REVISIONS<br>REVISED PER AWM COMMENTS | JOB NO.: 21482<br>SCALE: AS SHOWN<br>DATE: 07/25/2024<br>DRAWN BY: GDC<br>DESIGN BY: SP<br>REVIEW BY: SP<br>SHEET: 11 OF 10   |

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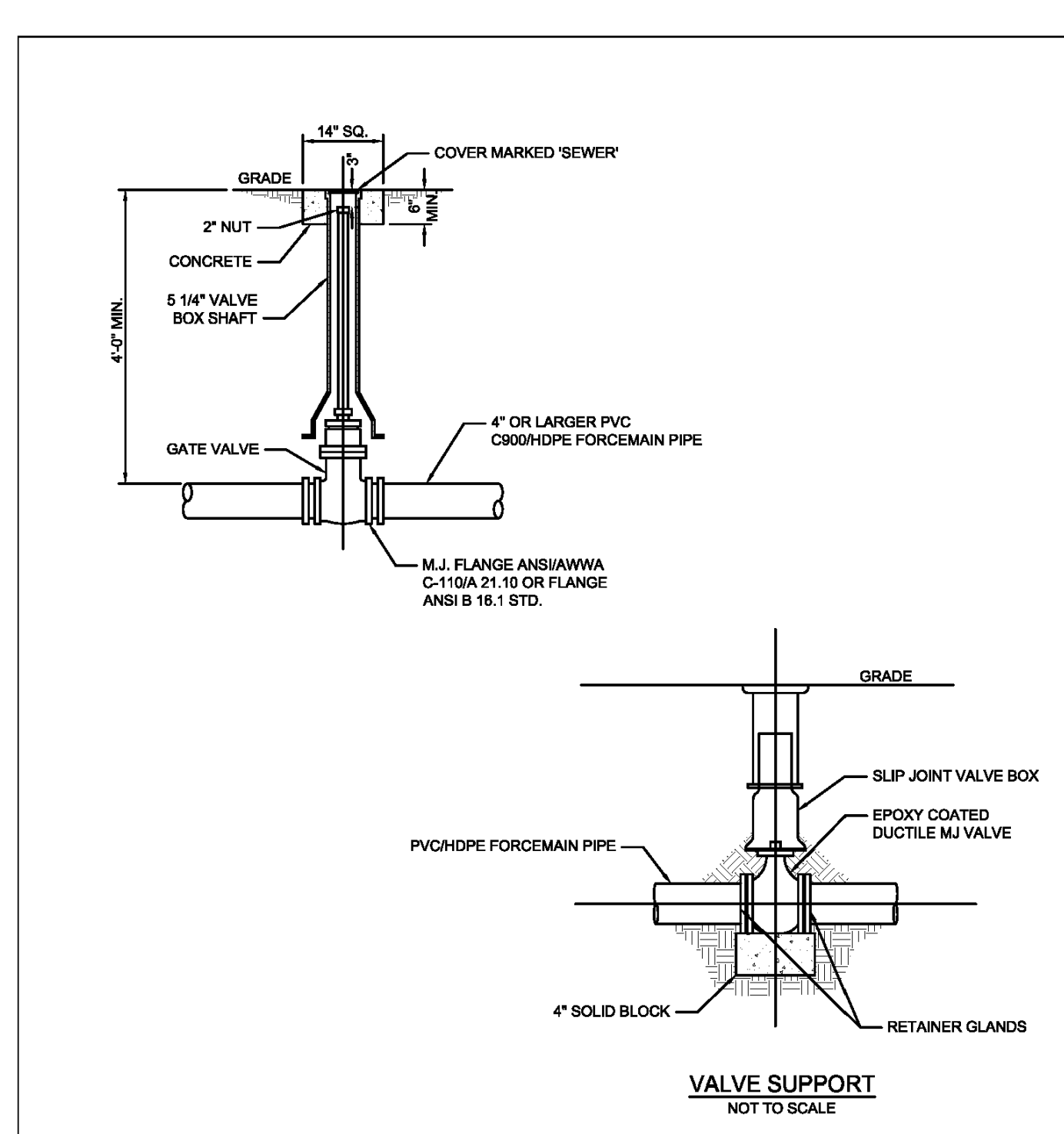




**STANDARD DETAILS**

**THRUST BLOCKS**

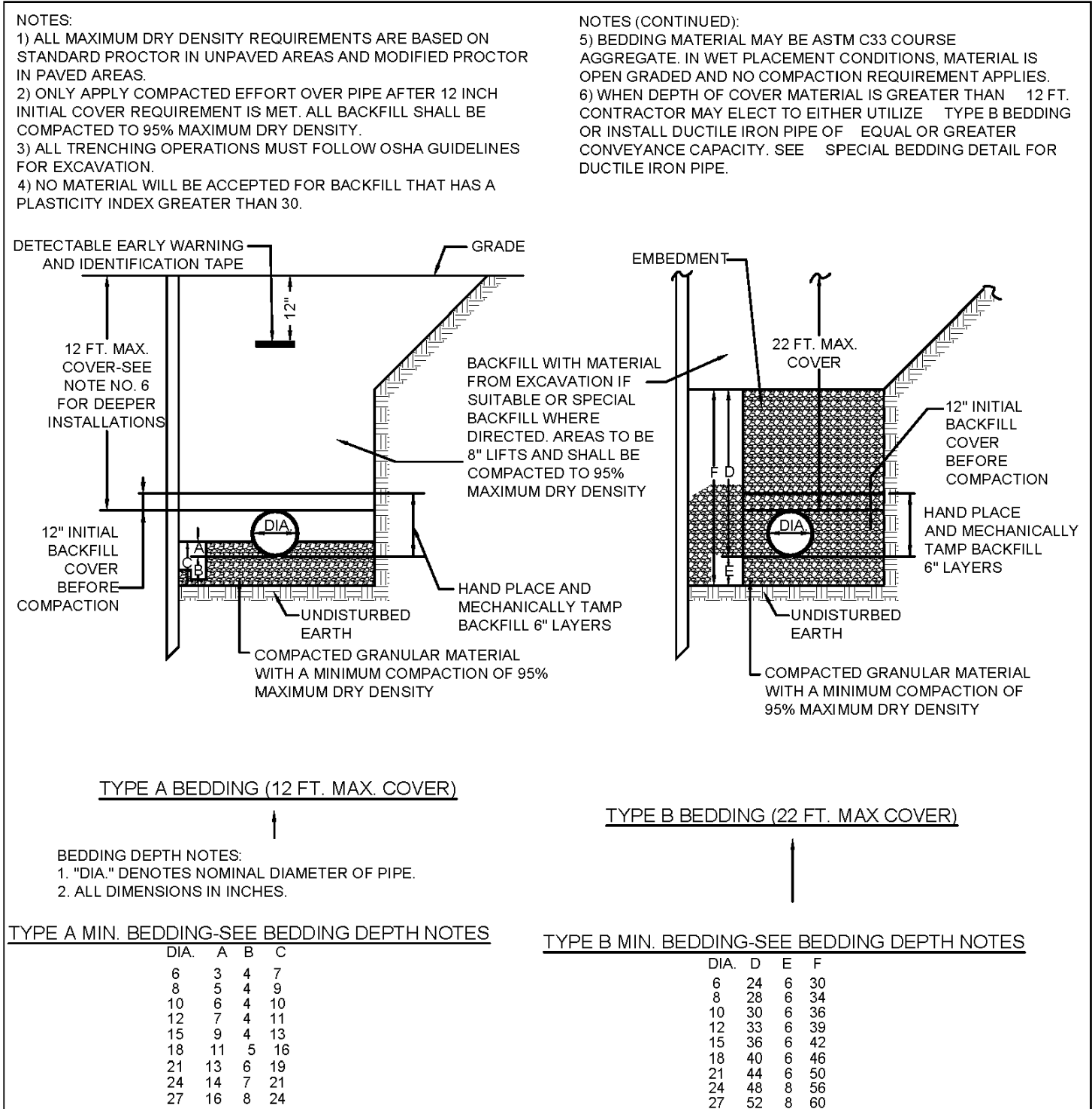
ISSUED: JUNE 15, 2012    SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED: SEPTEMBER 1, 2015    PLATE: AWCRS-05



**STANDARD DETAILS**

**TYPICAL VALVE, VALVE BOX & VALVE SUPPORT**

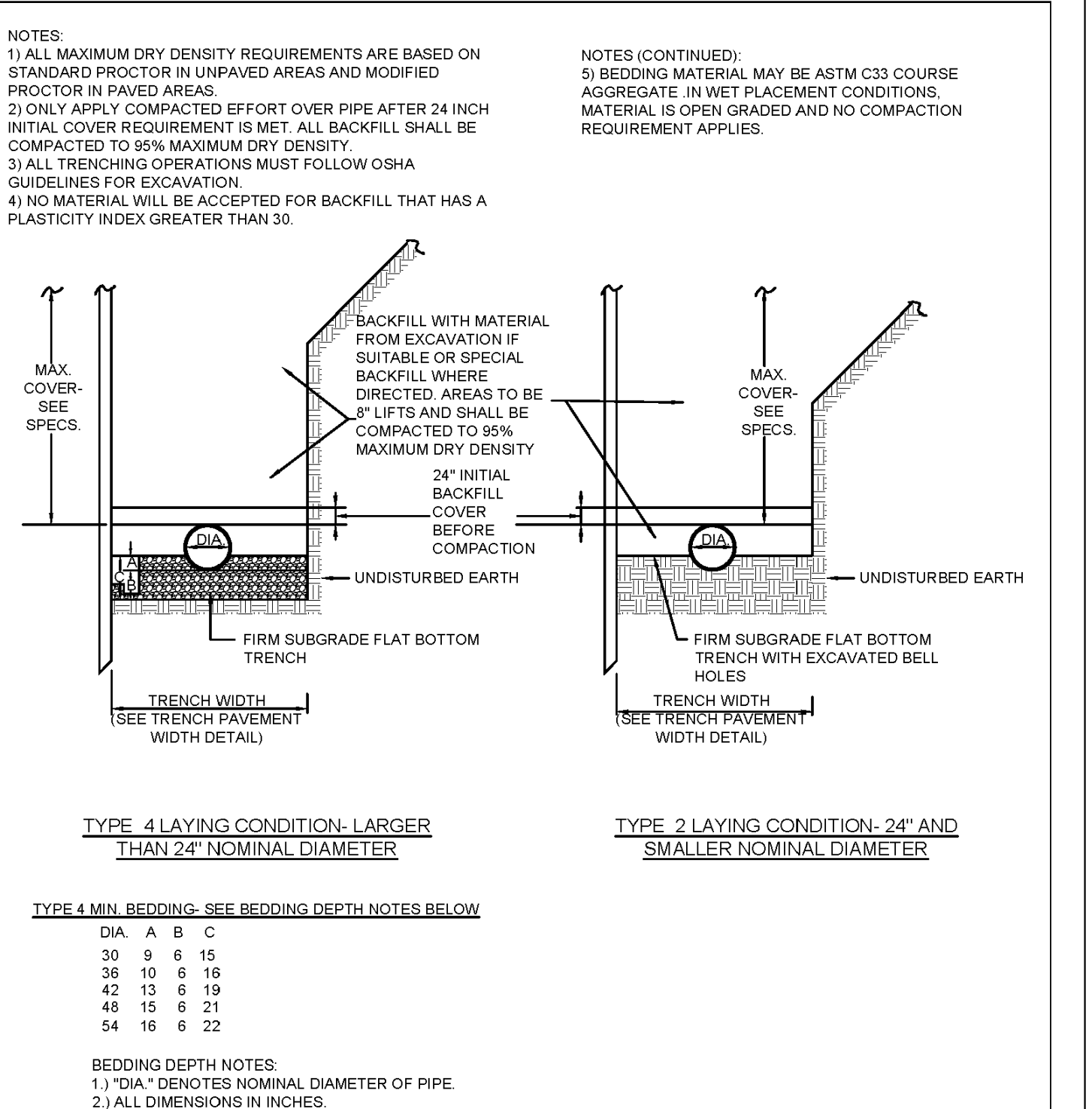
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 REVISED:    PLATE: AWCRS-8A



**STANDARD DETAILS**

**SPECIAL BEDDING AND EMBEDMENT FOR PVC SANITARY SEWER PIPE**

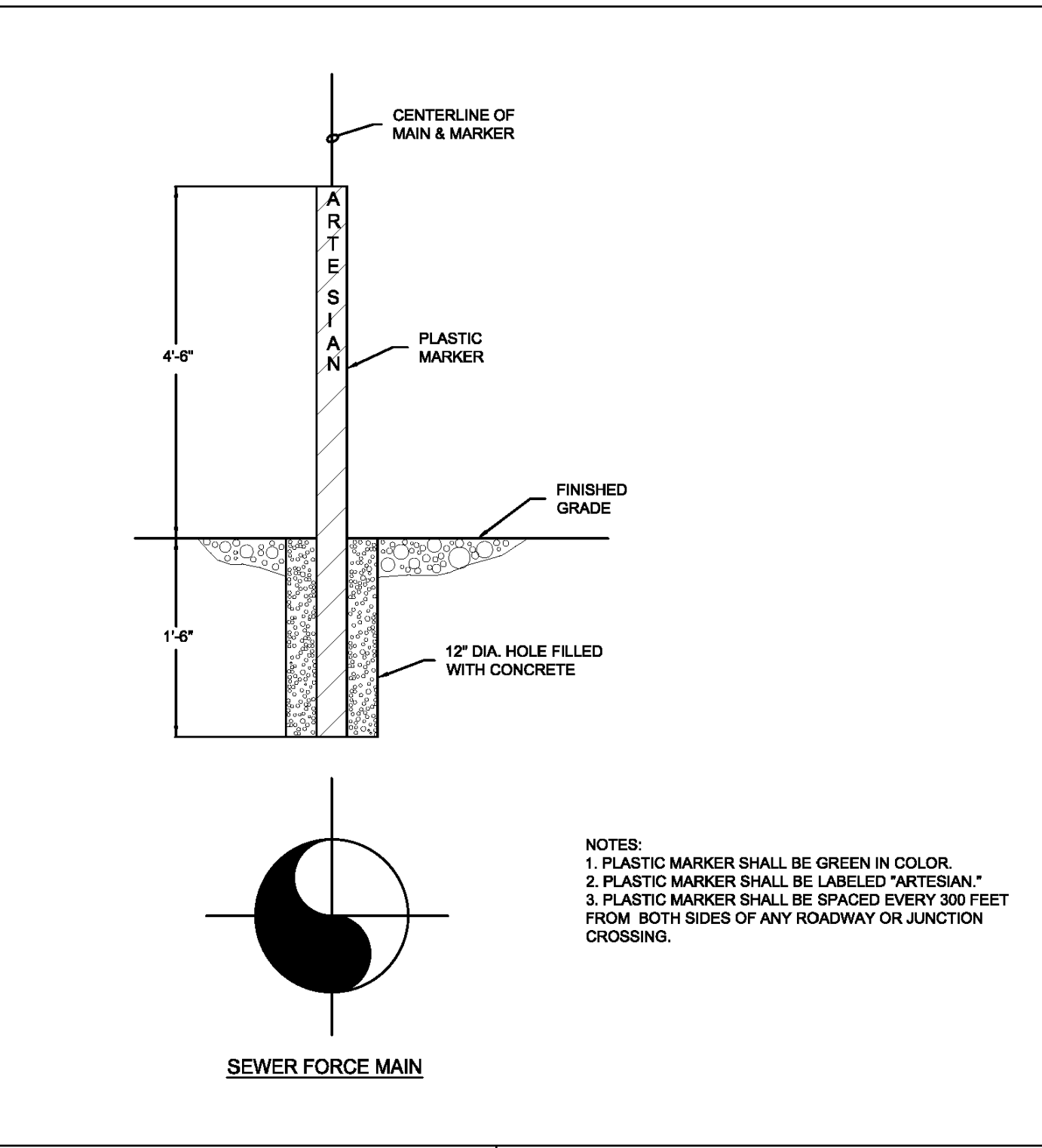
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 REVISED: FEBRUARY 20, 2014  
 REVISED: SEPTEMBER 1, 2015    PLATE: BD-01



**STANDARD DETAILS**

**SPECIAL BEDDING FOR DUCTILE IRON PIPE**

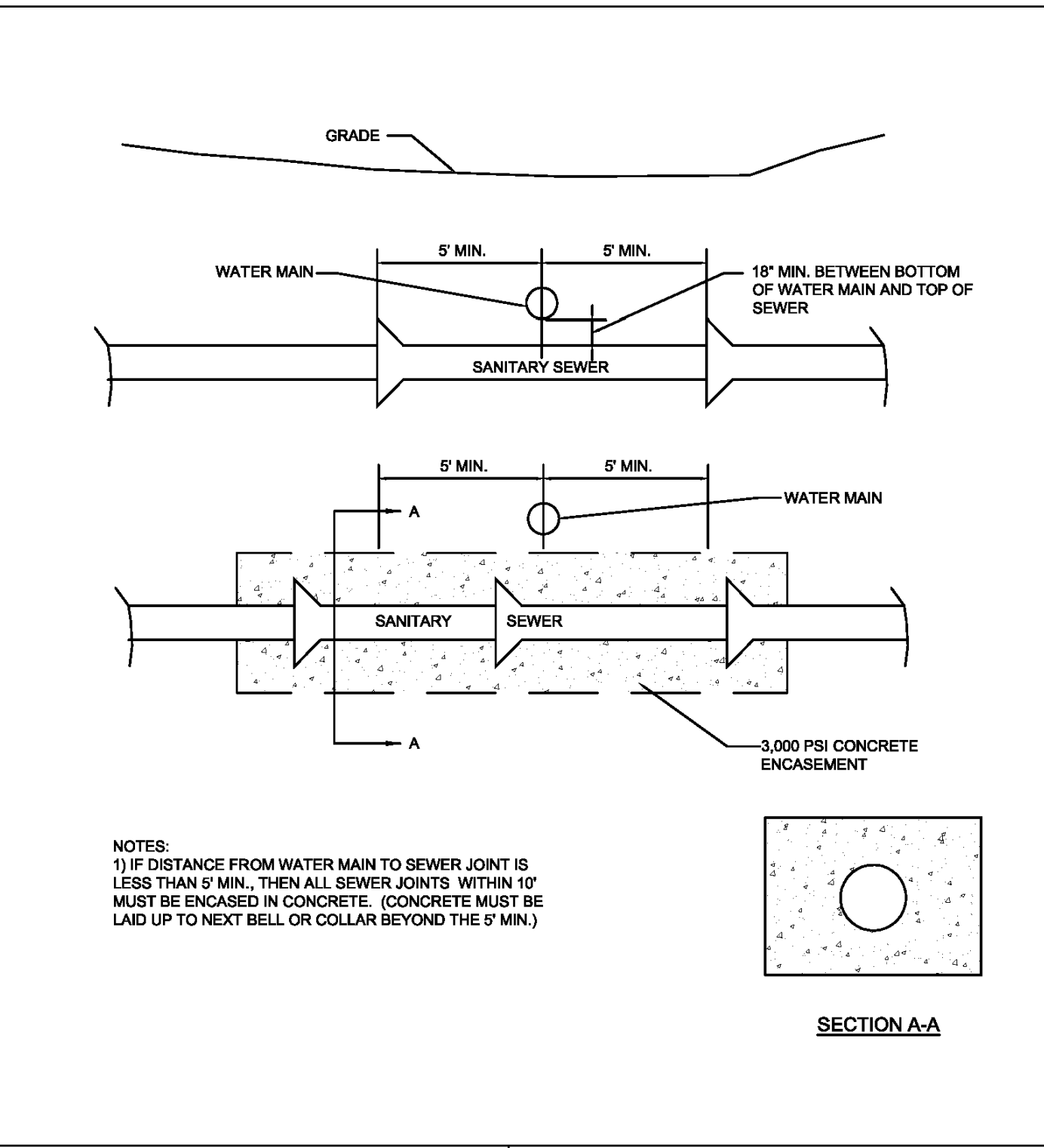
ISSUED: JUNE 15, 2012    SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED: SEPTEMBER 1, 2015    PLATE: BD-02



**STANDARD DETAILS**

**STANDARD MARKER FOR SEWER FORCE MAINS IN EASEMENTS**

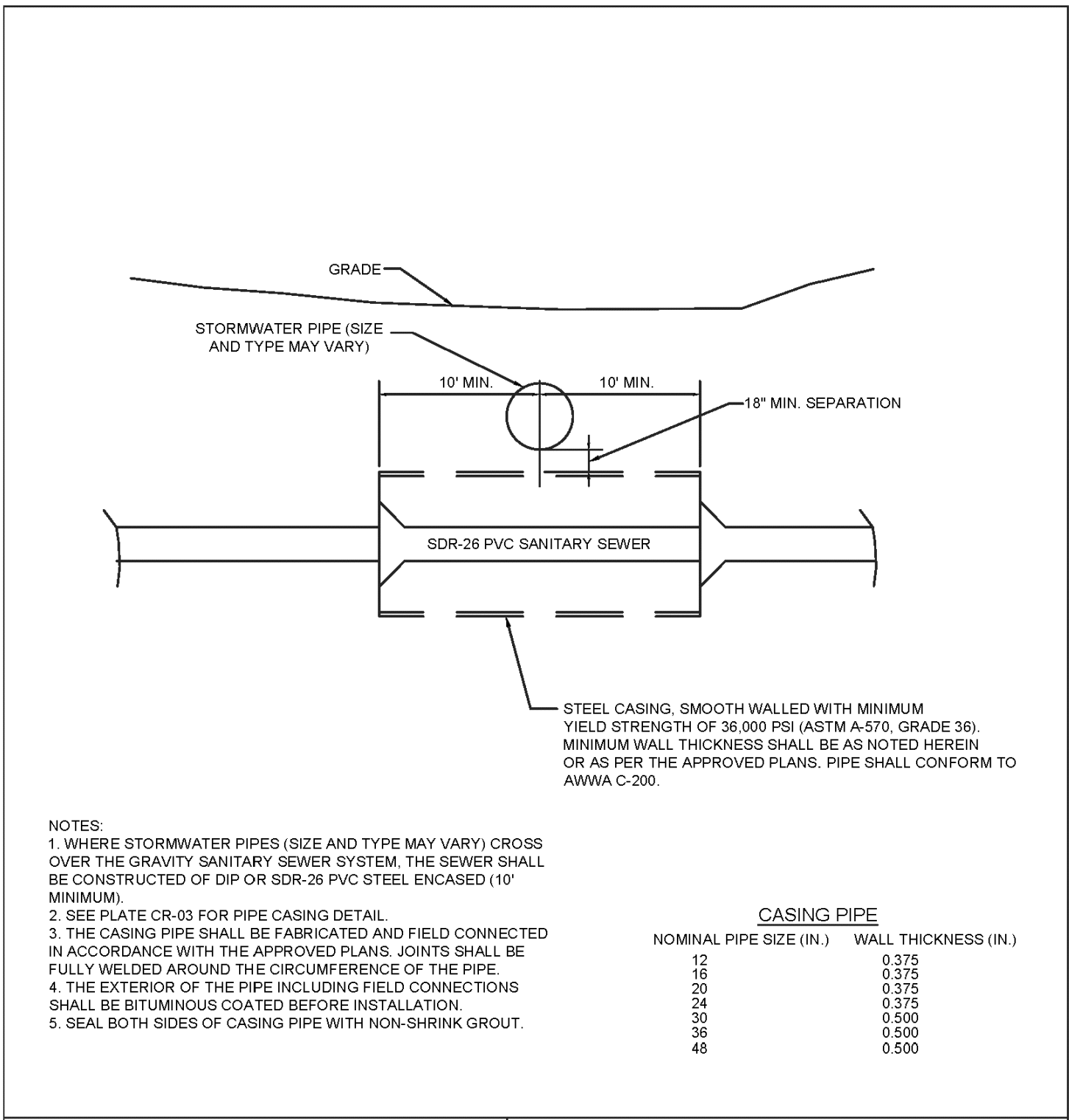
ISSUED: JUNE 15, 2012    SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED:    PLATE: BD-03



**STANDARD DETAILS**

**WATER AND SEWER CROSSING**

ISSUED: JUNE 15, 2012    SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED:    PLATE: CR-01



**STANDARD DETAILS**

**STORMWATER AND SEWER CROSSING**

ISSUED: JANUARY 31, 2019    SCALE: NOT TO SCALE  
 REVISED:    PLATE: CR-02

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 (302) 326-2200  
 FAX: (302) 326-2399  
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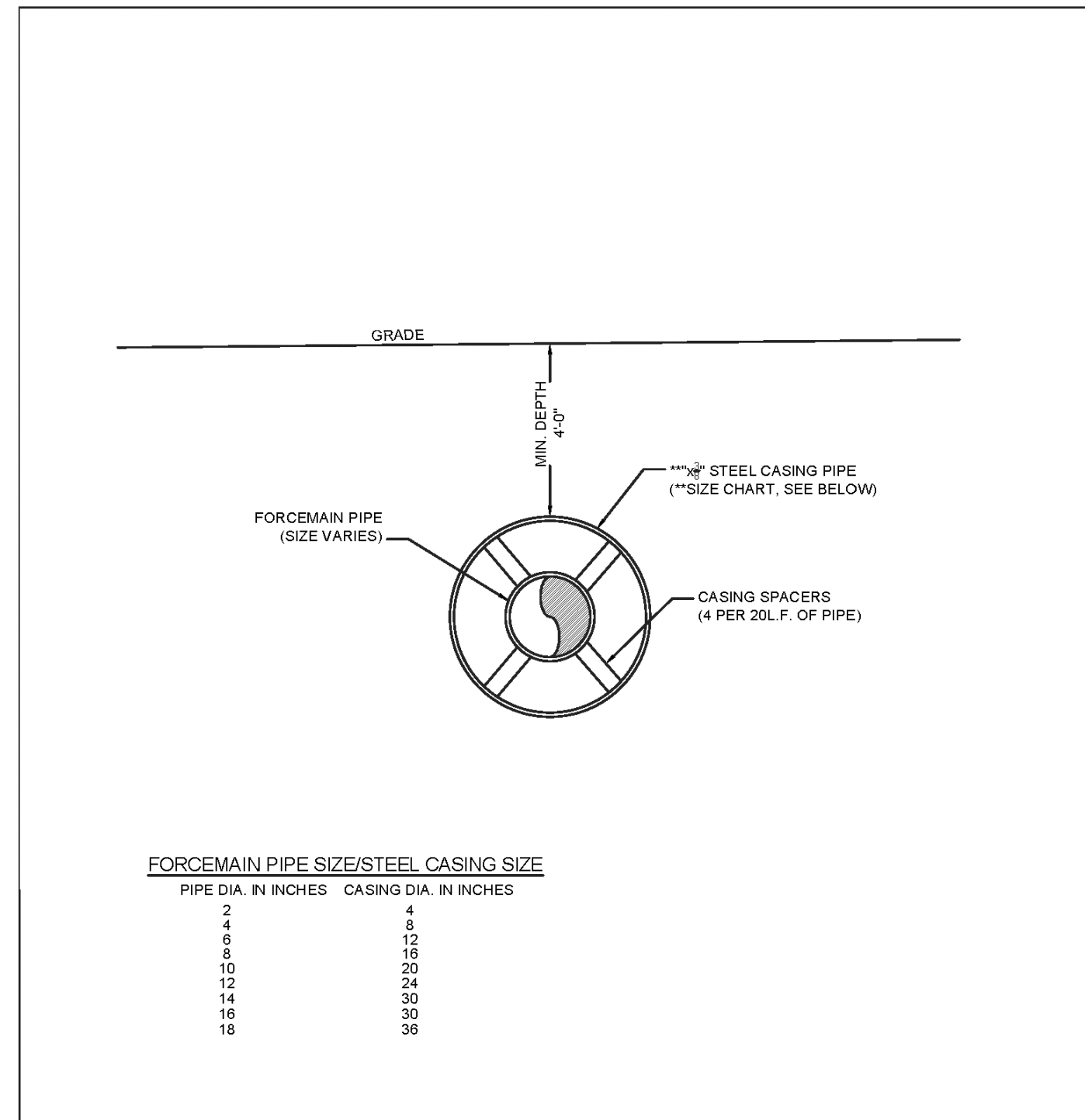
**SEWAGE PUMPING STATION STANDARD DETAILS FOR PARADISE MEADOWS**

PHILIP L. ELLIOTT  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 12489  
 07/20/24  
 ENGINEER'S SEAL

| DATE       | REVISIONS                | JOB NO.: 21482   |
|------------|--------------------------|------------------|
| 03/21/2024 | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |
|            |                          | DATE: 07/25/2024 |
|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 12 OF 10  |

P:\PROJECTS\1482 - Cove Neck Rd. - Paradise SPS\Plans\UE\Overall\Plan\Plan\_SPS\_V3\1482-SPS-12-14 STD DETAILS.dwg, 7/29/2024 1:00:33 PM, gcolley, 1:1, Copyright 2024 Morris & Ritchie Associates, Inc.



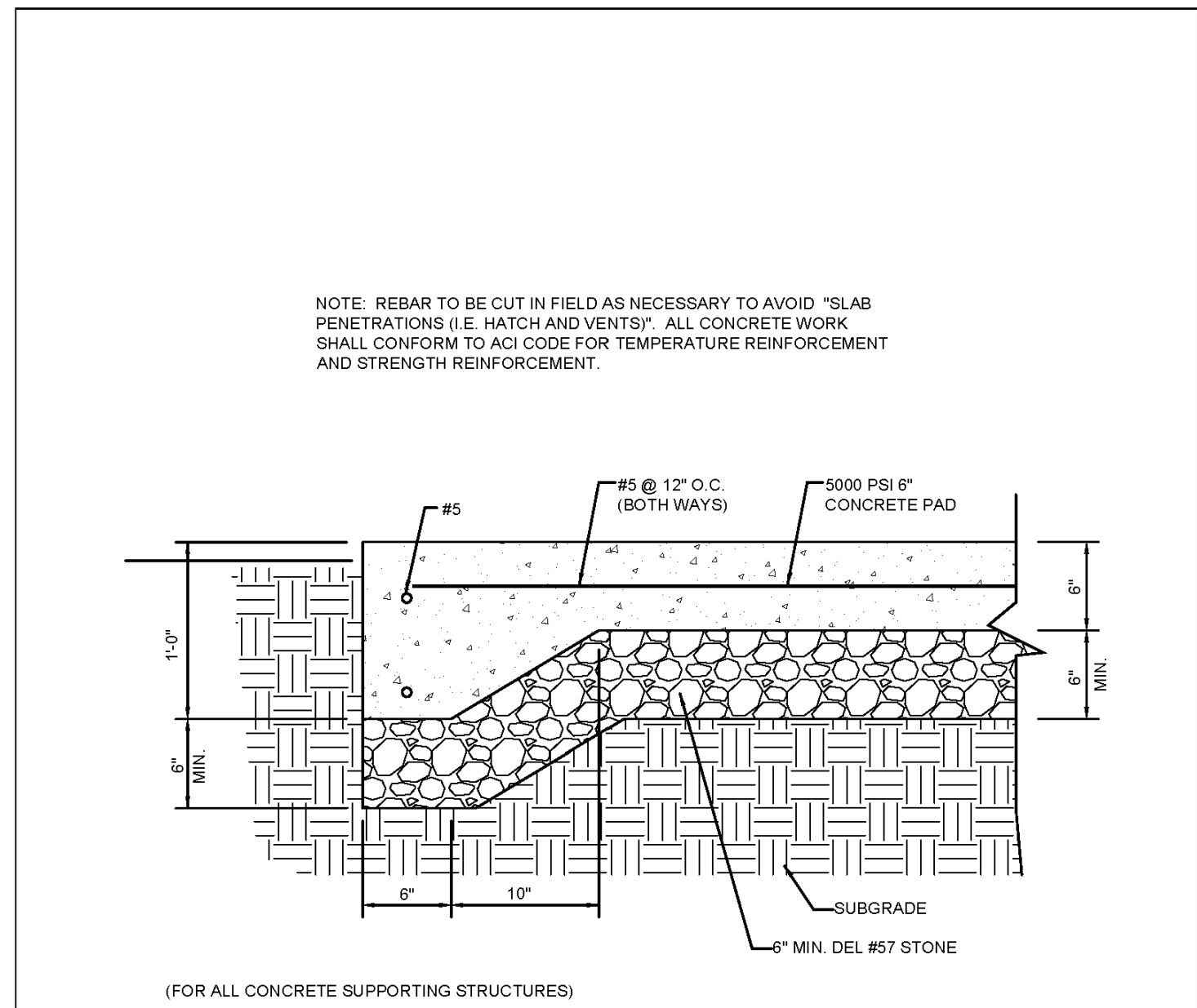


**FORCE MAIN PIPE SIZE/STEEL CASING SIZE**

| PIPE DIA. IN INCHES | CASING DIA. IN INCHES |
|---------------------|-----------------------|
| 2                   | 3                     |
| 4                   | 5                     |
| 6                   | 8                     |
| 8                   | 10                    |
| 10                  | 12                    |
| 12                  | 14                    |
| 14                  | 16                    |
| 16                  | 18                    |
| 18                  | 20                    |

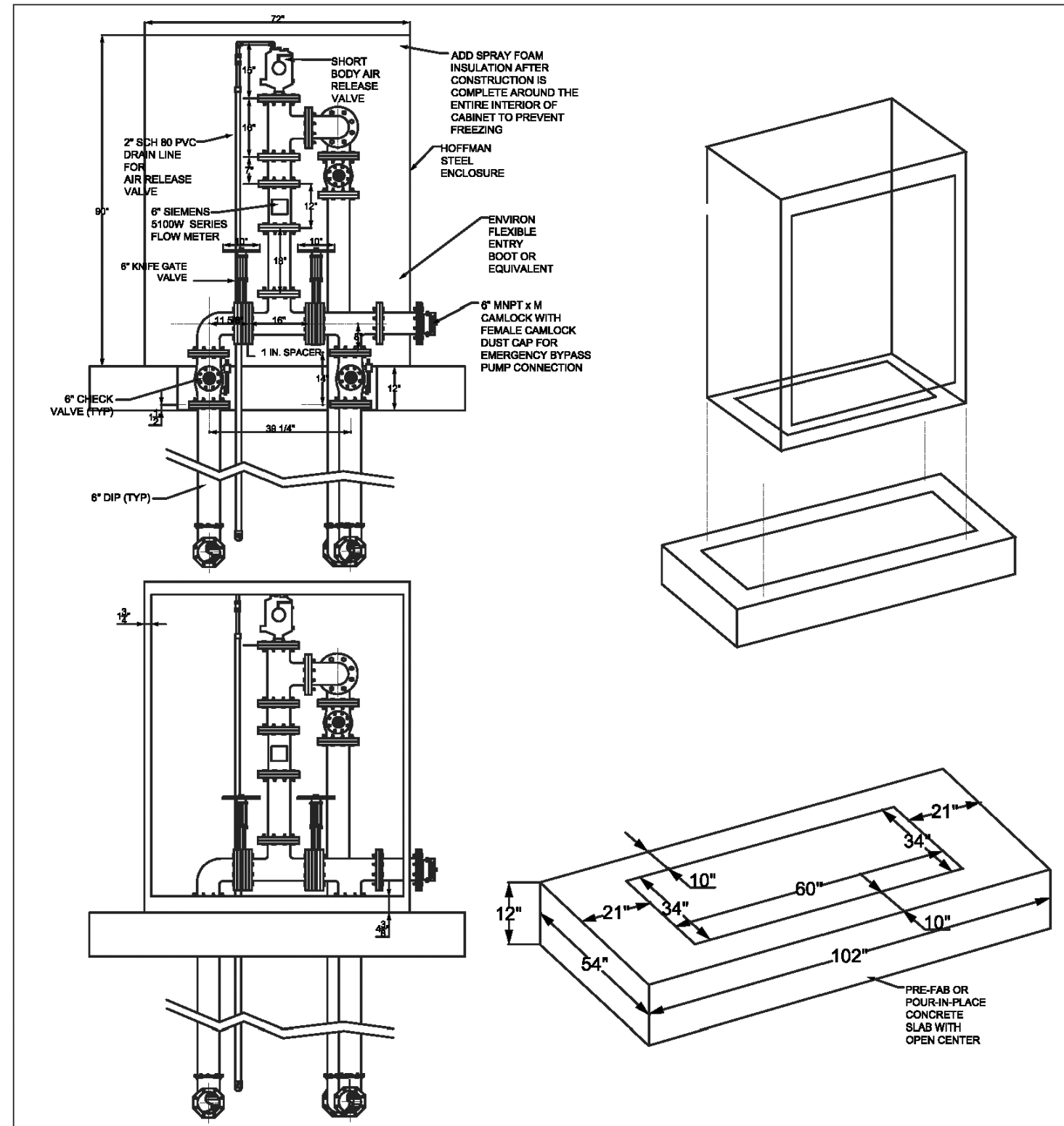
**STANDARD DETAILS**  
**TYPICAL PIPE CASING CROSS-SECTION**

ISSUED: FEBRUARY 20, 2014 SCALE: NOT TO SCALE  
 REVISED: SEPTEMBER 1, 2015  
 REVISED: JANUARY 31, 2019 PLATE: CR-03



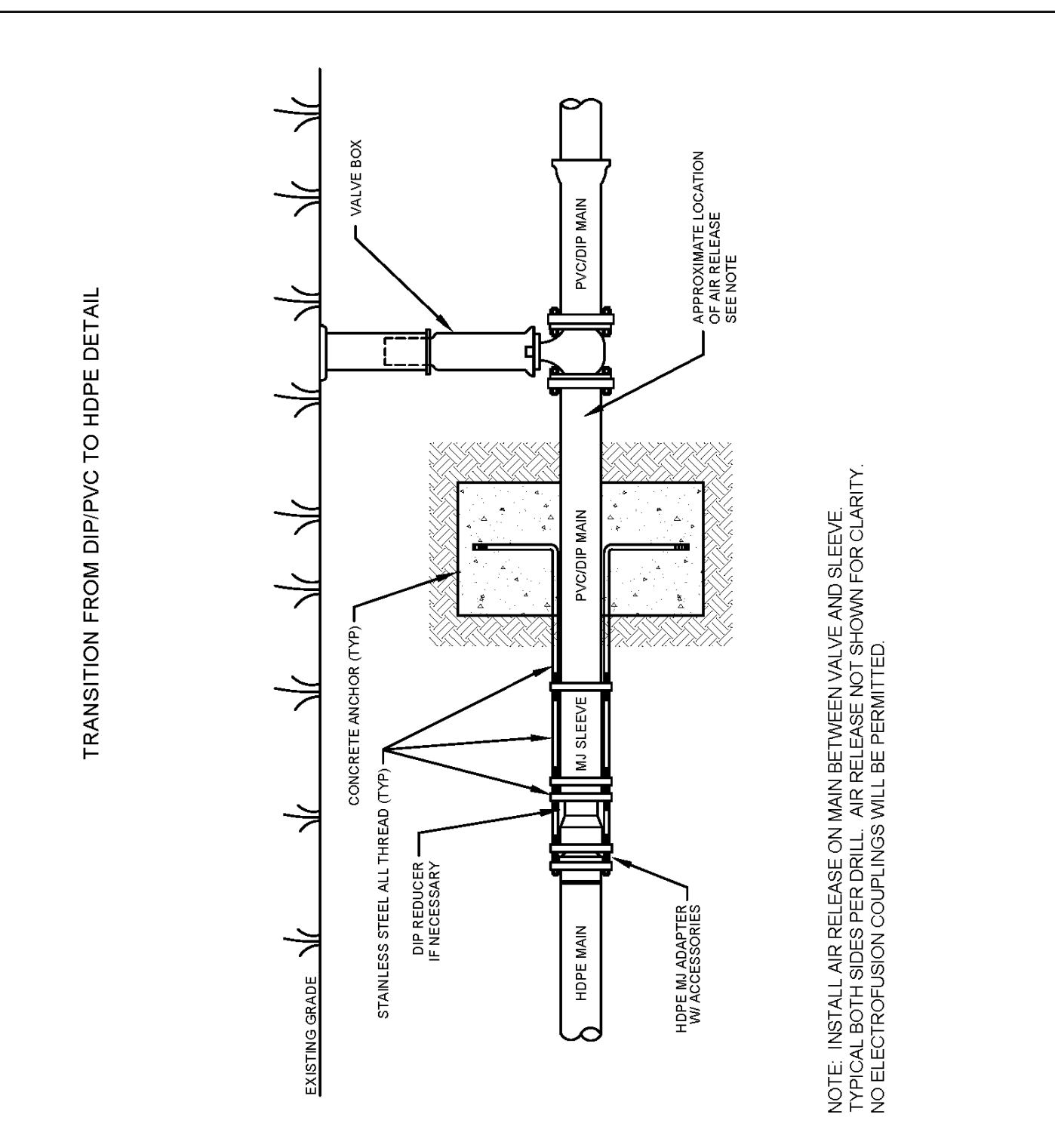
**STANDARD DETAILS**  
**PUMP STATION EQUIPMENT CONCRETE PAD TYPICAL SECTION**

ISSUED: JUNE 15, 2012 SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED: SEPTEMBER 1, 2015 PLATE: PS-02



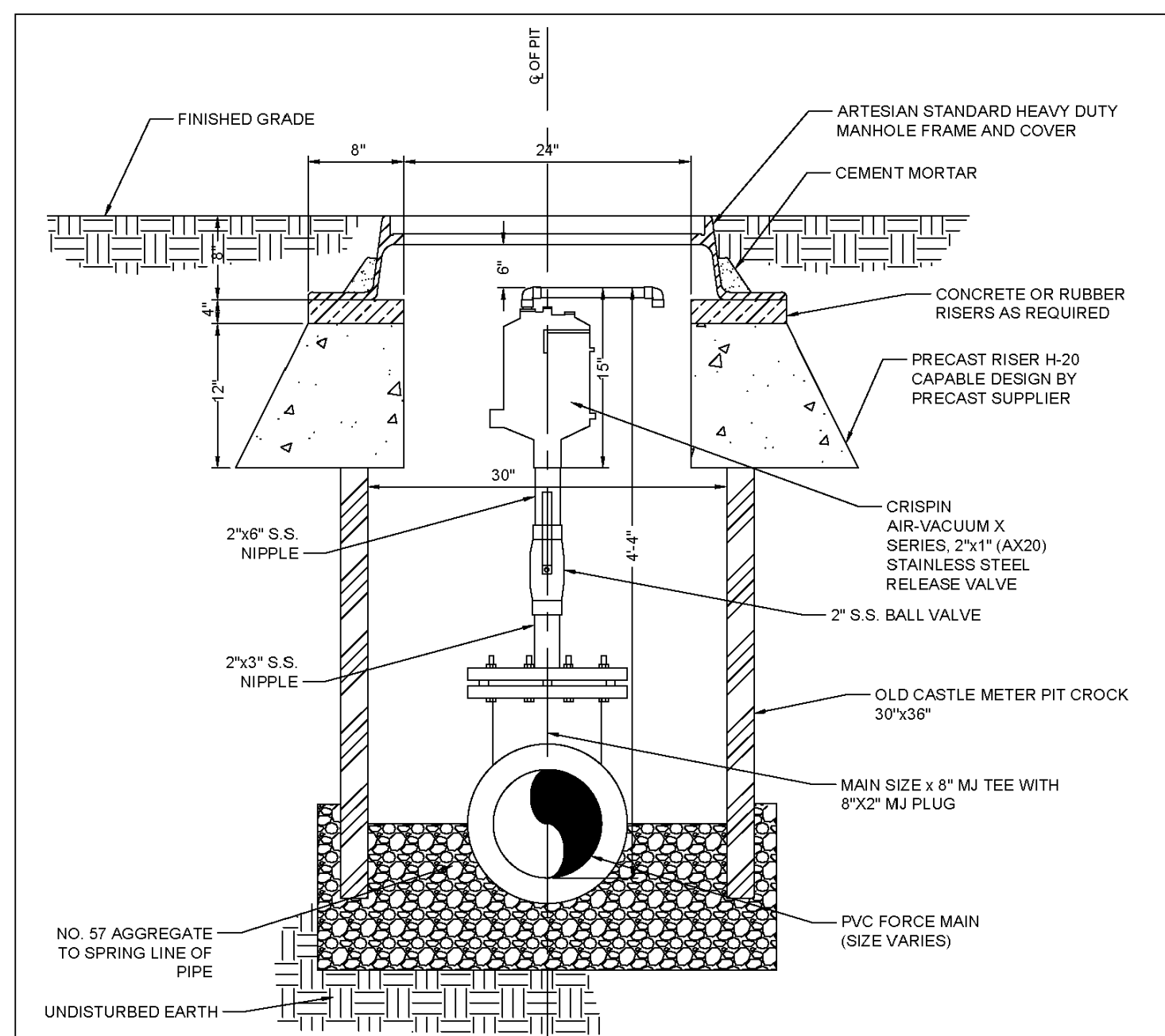
**STANDARD DETAILS**  
**6-INCH ABOVE GRADE VALVE ENCLOSURE WITH BYPASS**

ISSUED: JANUARY 31, 2019 SCALE: NOT TO SCALE  
 REVISED:  
 REVISED: PLATE: PS-08



**STANDARD DETAILS**  
**TRANSITION FROM DIP/PVC TO HDPE TYPICAL**

ISSUED: APRIL 20, 2011 SCALE: NOT TO SCALE  
 REVISED: FEBRUARY 20, 2014  
 REVISED: SEPTEMBER 1, 2015 PLATE: TRAN-01

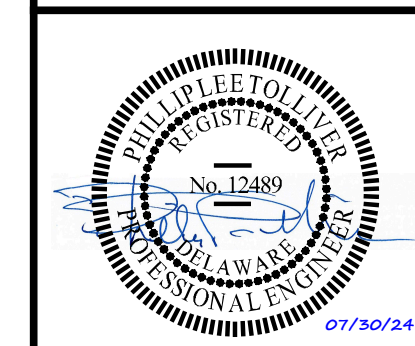


**STANDARD DETAILS**  
**MODIFIED COMB. SEWERAGE AIR RELEASE/VACUUM RELIEF VALVE NON-TRAFFIC AREAS**

ISSUED: AUGUST 6, 2019 SCALE: NOT TO SCALE  
 REVISED: NOV. 10, 2023  
 REVISED: PLATE: MH-07



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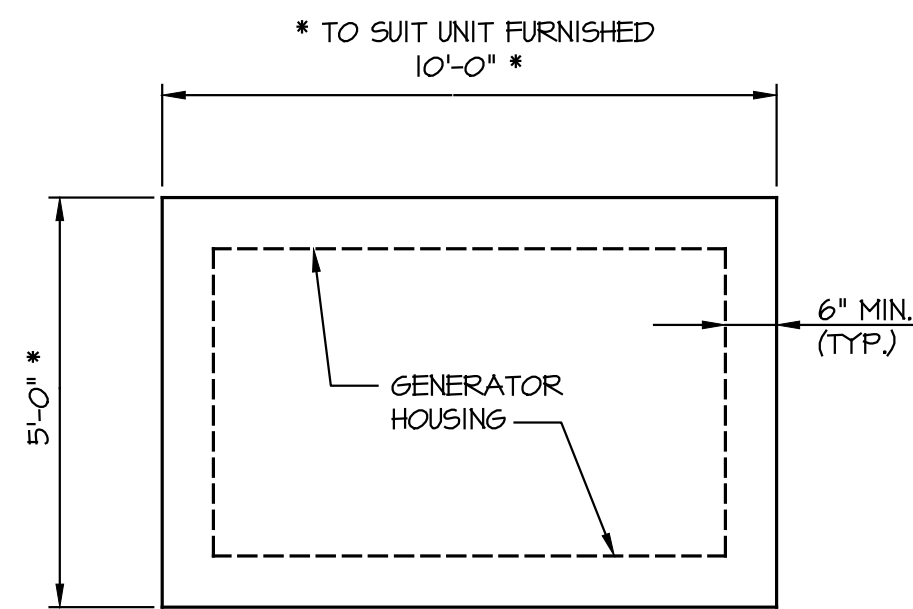


**SEWAGE PUMPING STATION STANDARD DETAILS FOR PARADISE MEADOWS**

| DATE       | REVISIONS                | JOB NO.: 21482   |
|------------|--------------------------|------------------|
| 03/21/2024 | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |
|            |                          | DATE: 07/25/2024 |
|            |                          | DRAWN BY: GDC    |
|            |                          | DESIGN BY: SP    |
|            |                          | REVIEW BY: SP    |
|            |                          | SHEET: 13 OF 18  |

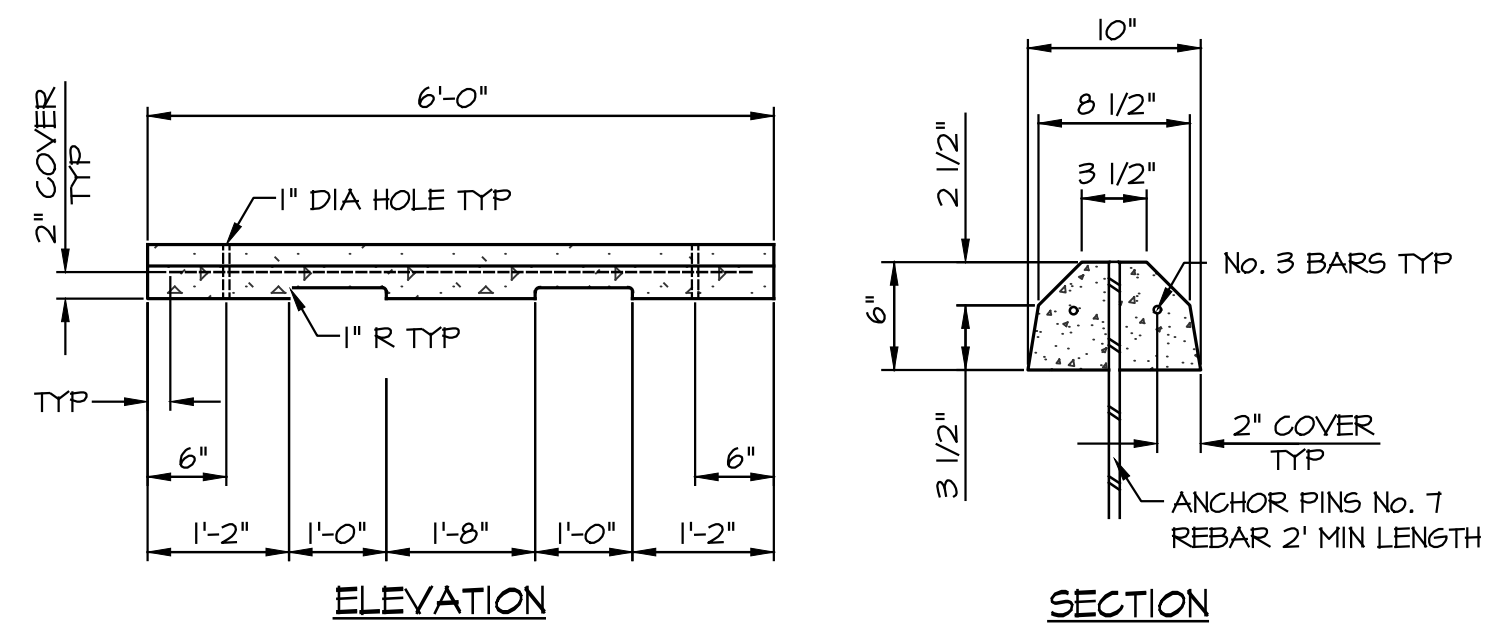
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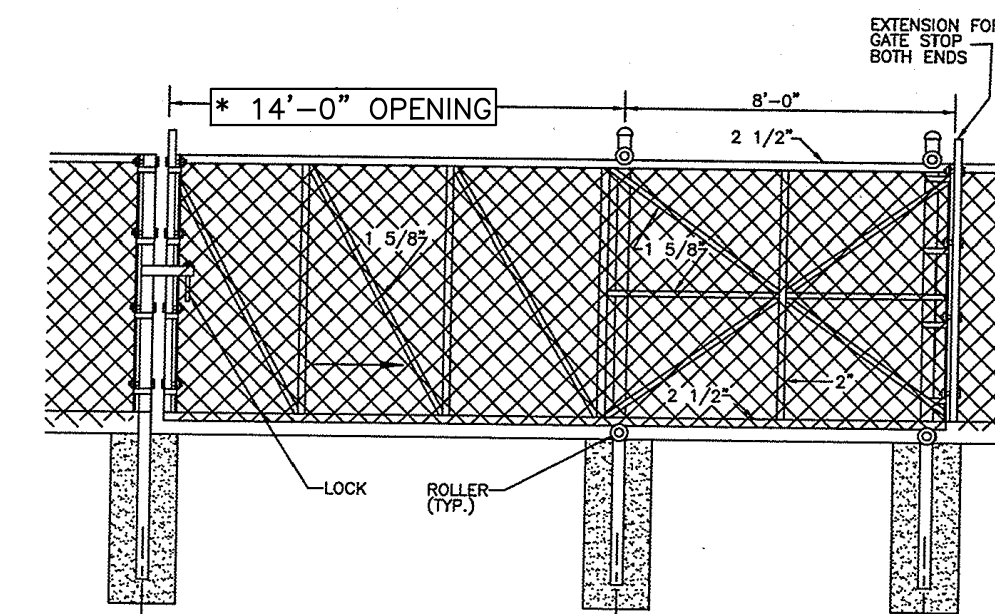
ALL ANCHOR BOLTS SHALL BE CAST IN PLACE FOR GENERATOR FRAME AND HOUSING. LOCATION, SIZE, QUANTITY AND EMBEDMENT AS RECOMMENDED BY GENERATOR SET MFR.

**PLAN**



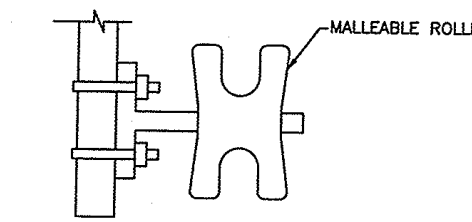
**TYPE II CONCRETE WHEELSTOP**

NOT TO SCALE



**TYPICAL CANTILEVER SLIDING GATE**

NOT TO SCALE



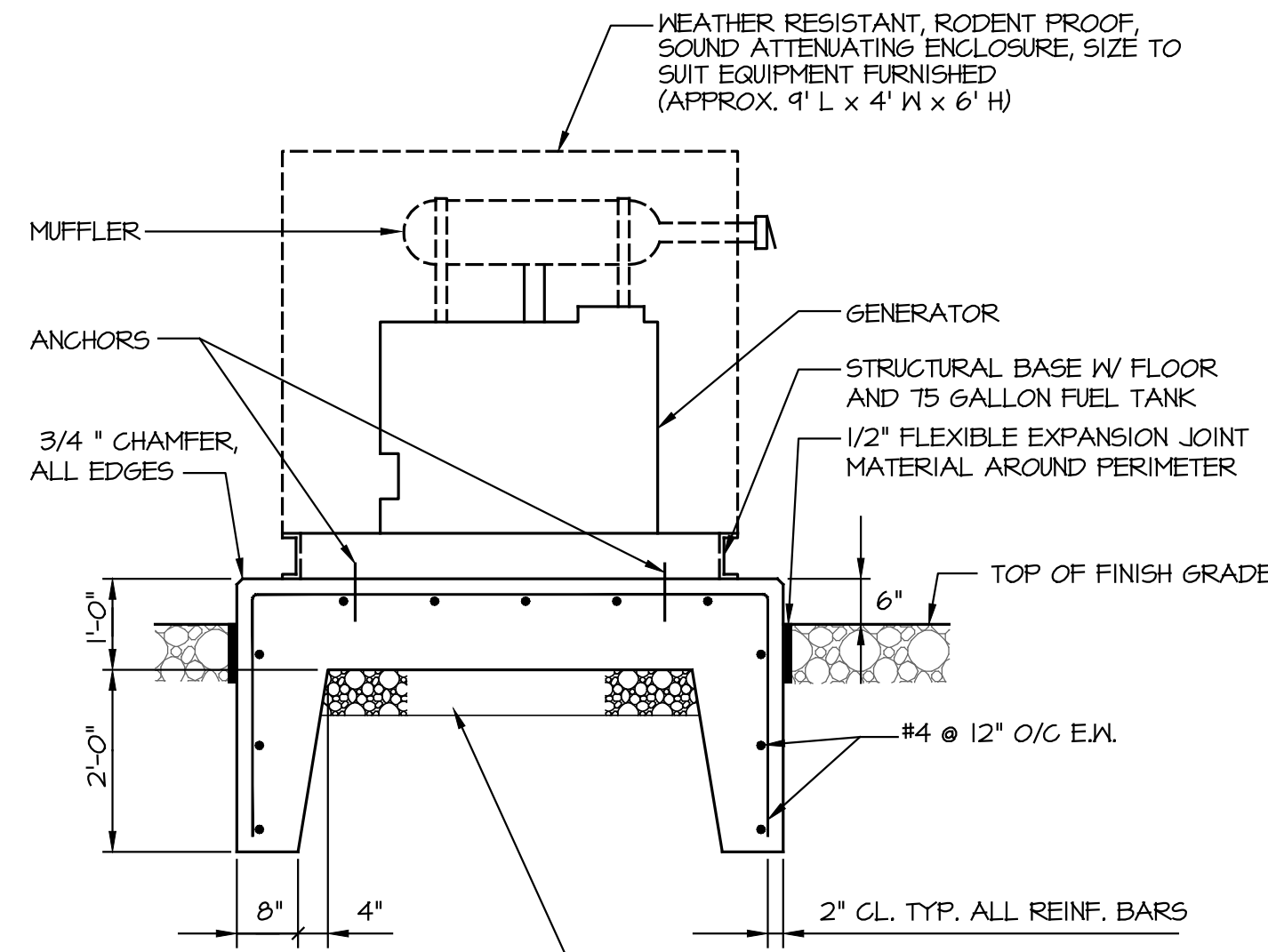
**TYPICAL ROLLER ASSEMBLY**

NOT TO SCALE

• (MODIFIED)

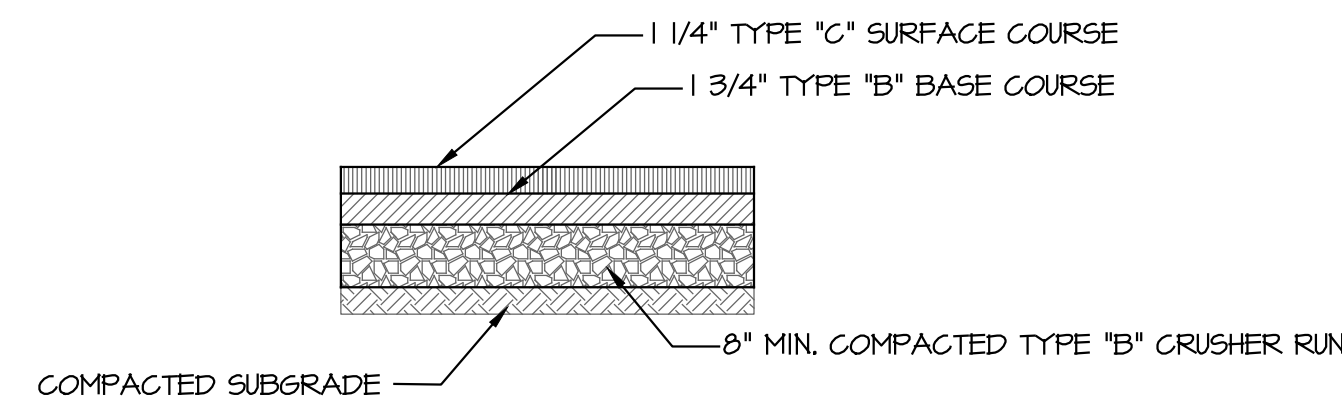
**CANTILEVER SLIDING GATE AND ROLLING ASSEMBLY**

NOT TO SCALE



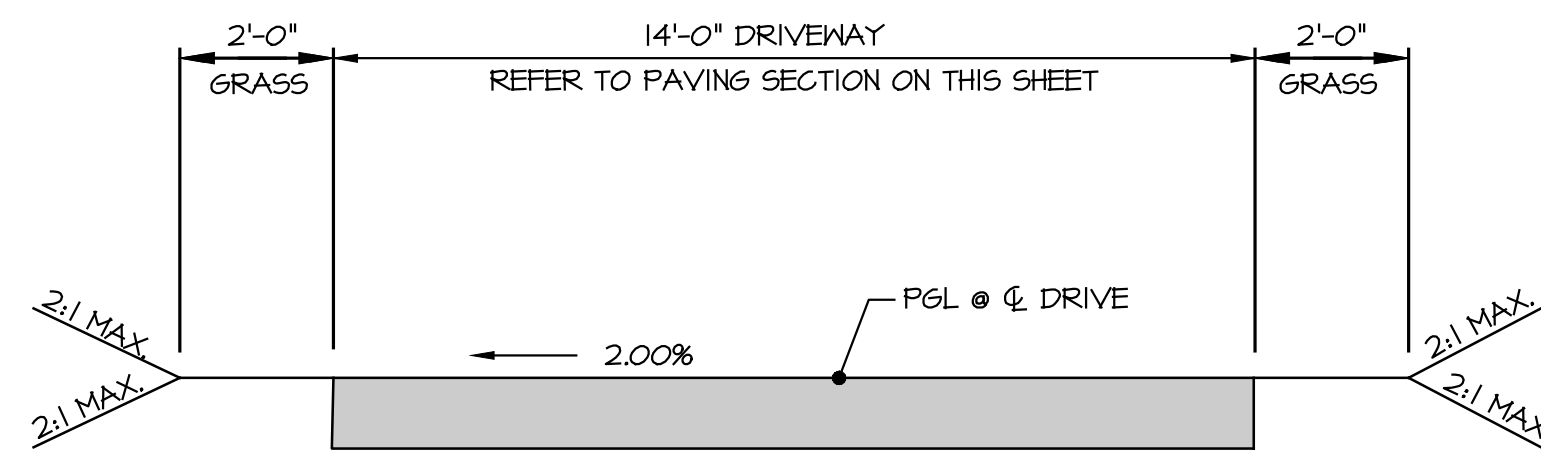
**ELEVATION EMERGENCY GENERATOR PAD DETAIL**

NOT TO SCALE



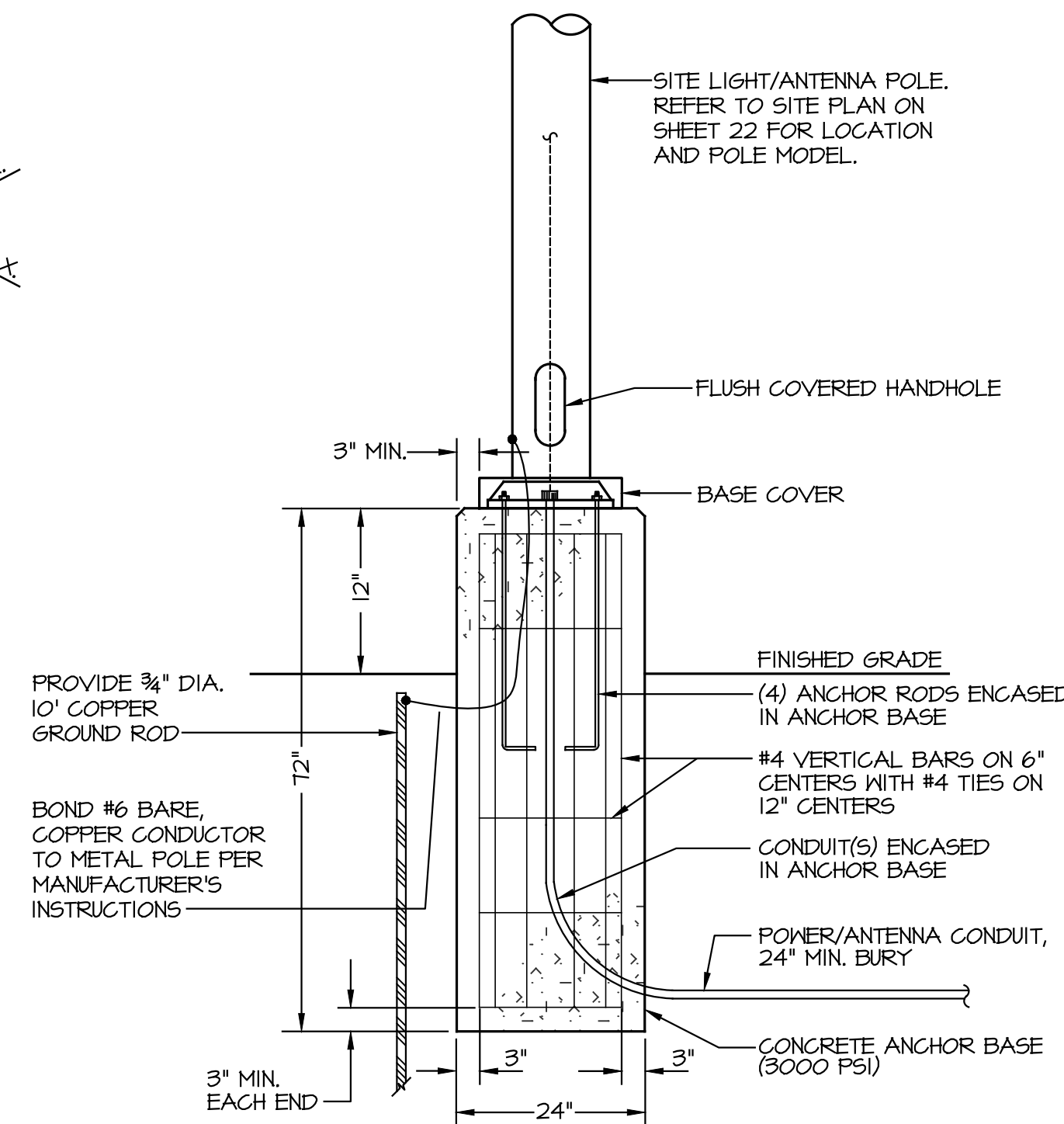
**PUMP STATION DRIVEWAY PAVEMENT SECTION**

NOT TO SCALE



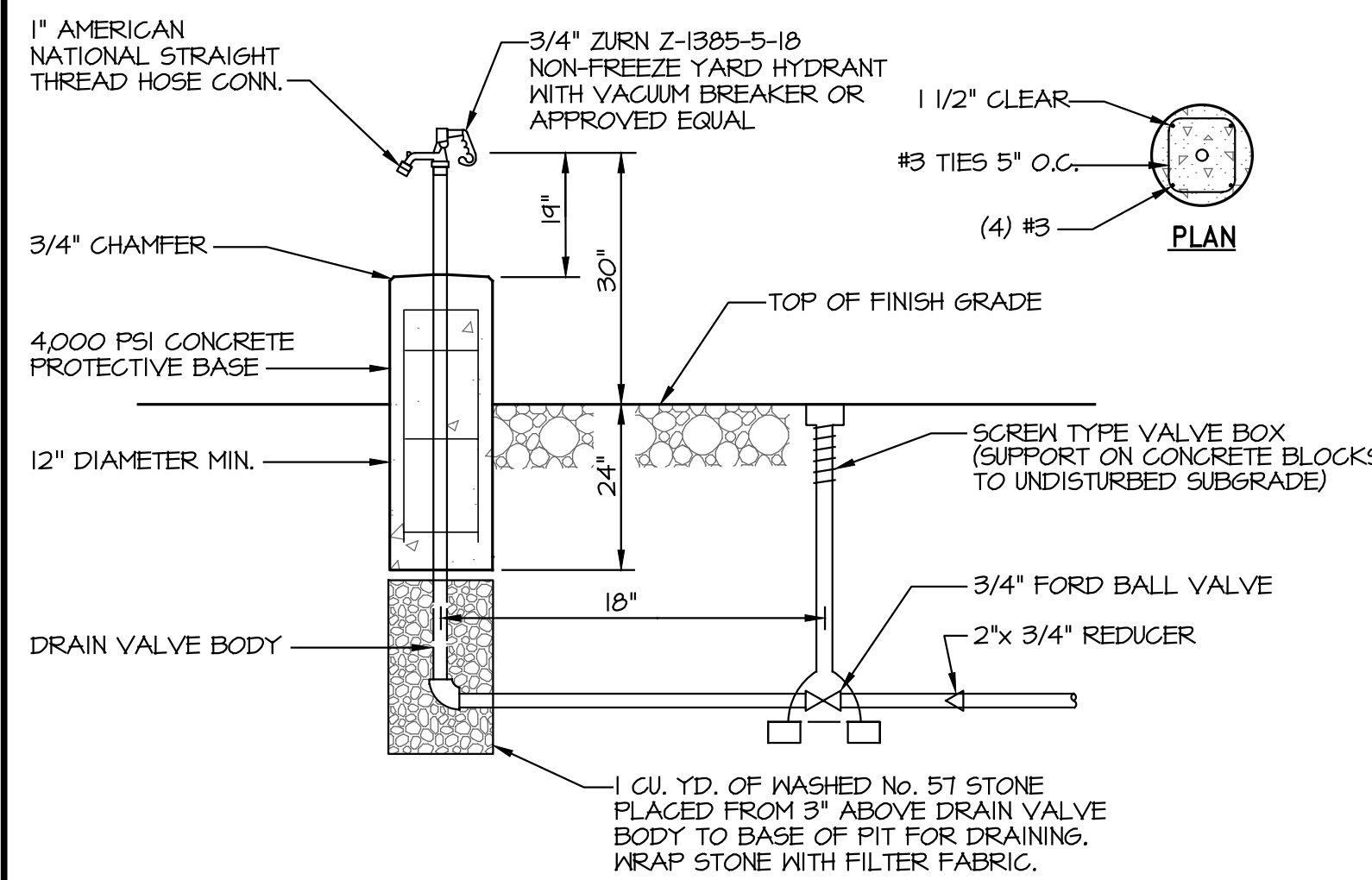
**SPS DRIVEWAY CROSS SECTION**

NOT TO SCALE





**SITE LIGHT / ANTENNA POLE FOUNDATION**

NOT TO SCALE



**YARD HYDRANT DETAIL**

NOT TO SCALE

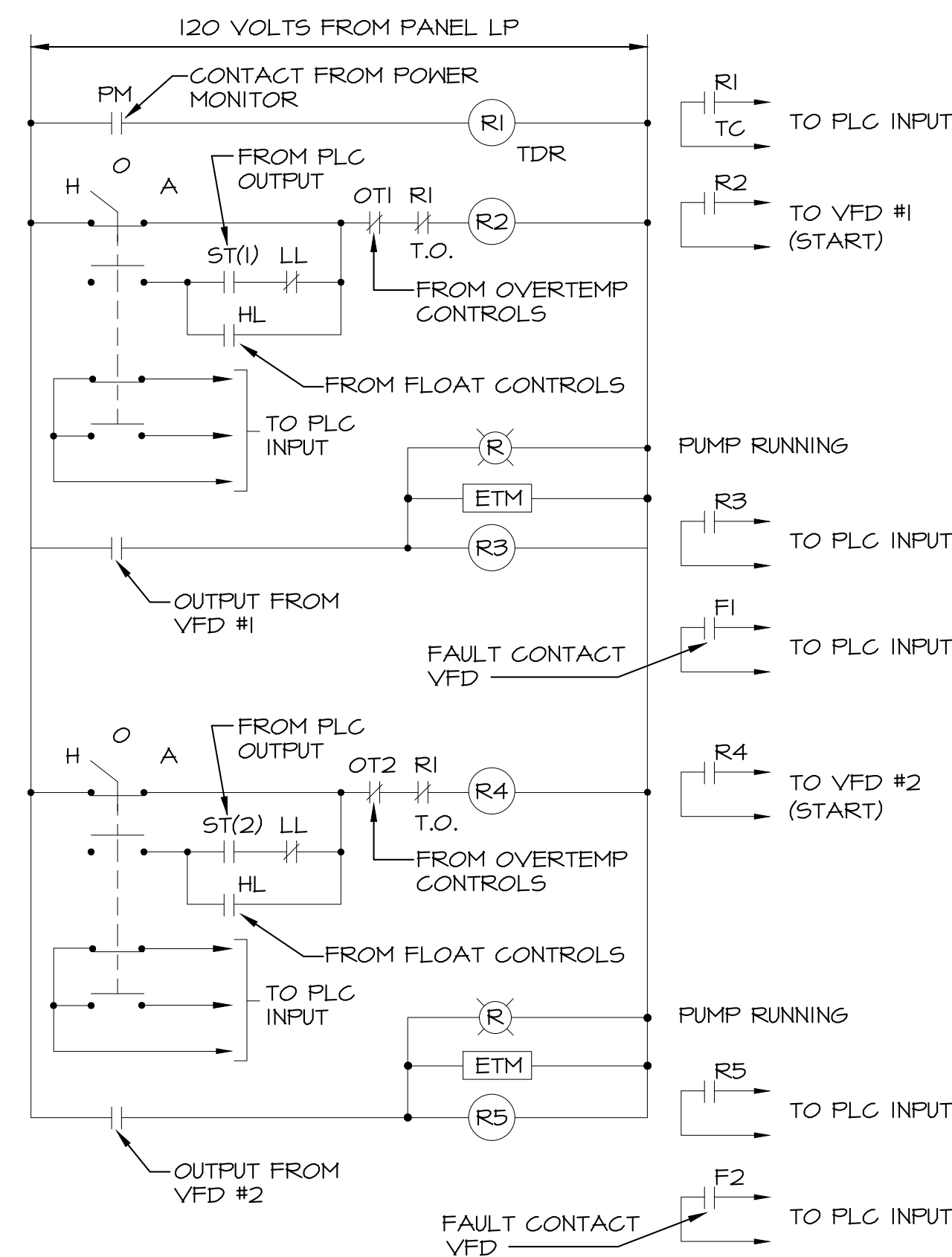
|   |                          |  |  |
|---|--------------------------|--|--|
|  |                          | <b>MORRIS &amp; RITCHIE ASSOCIATES, INC.</b><br>ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS<br>18 BOULDEN CIRCLE, SUITE: 36<br>WILMINGTON, DE 19720<br>(302) 326-2200<br>FAX: (302) 326-2399<br>MRAGTA.COM |  |
|  |                          | <b>SEWAGE PUMPING STATION STANDARD DETAILS FOR PARADISE MEADOWS</b>  |  |
| DATE  | REVISIONS                | JOB NO.: 21482   |  |
| 03/21/2024  | REVISED PER AWM COMMENTS | SCALE: AS SHOWN  |  |
|   |                          | DATE: 07/25/2024   |  |
|   |                          | DRAWN BY: GDC  |  |
|   |                          | DESIGN BY: SP  |  |
|   |                          | REVIEW BY: SP  |  |
|   |                          | SHEET: 14 OF 10  |  |

P:\PROJ\21482 - Cove Neck Rd. - Paradise SPS\Plans\DE\Overall\Plan\Paradise SPS V3\1482--SPS--12--14--STD DETAILS.dwg, 7/29/2024, 1:01:18 PM, gcolley, 1:1, Copyright 2024 Morris & Ritchie Associates, Inc.

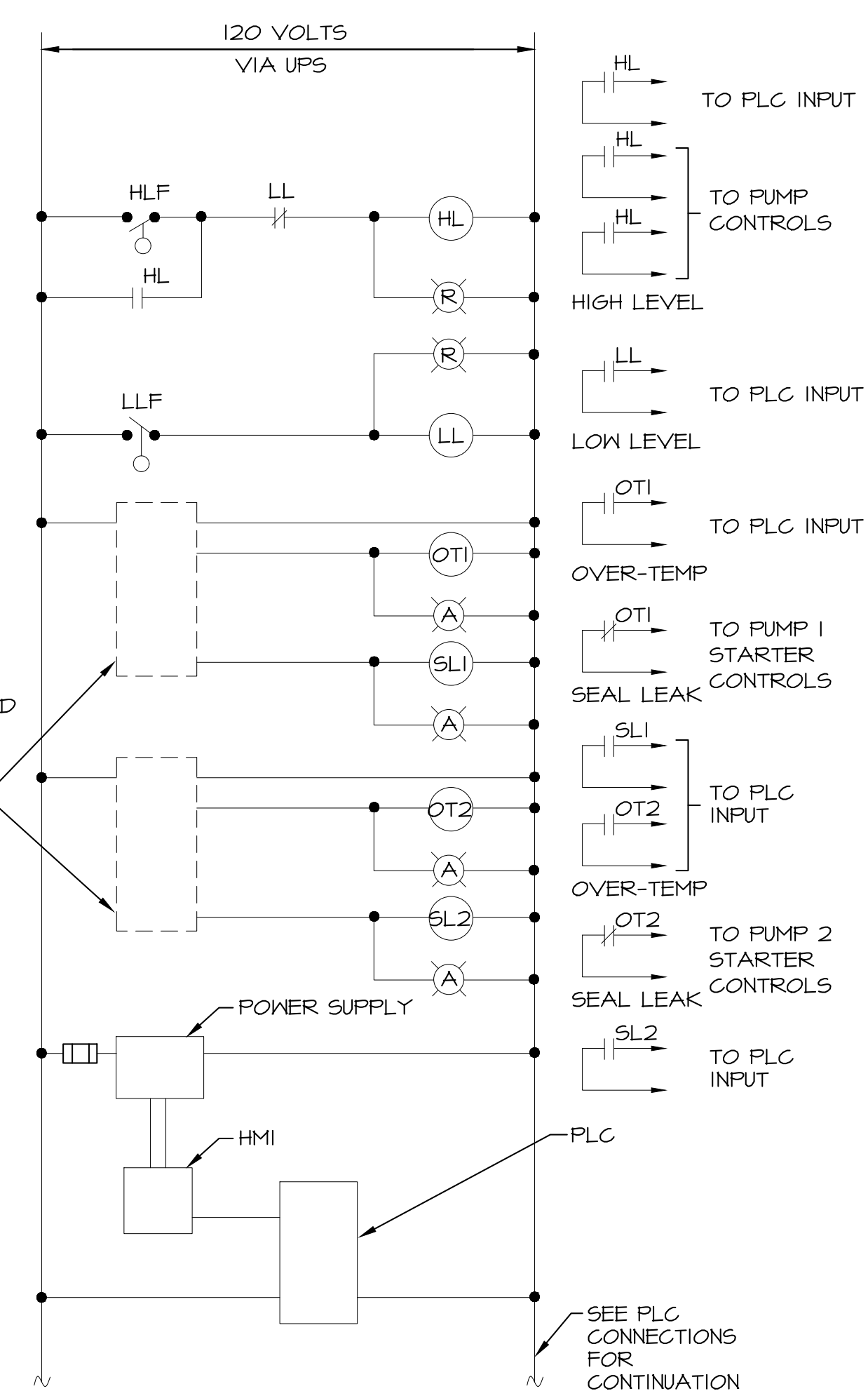




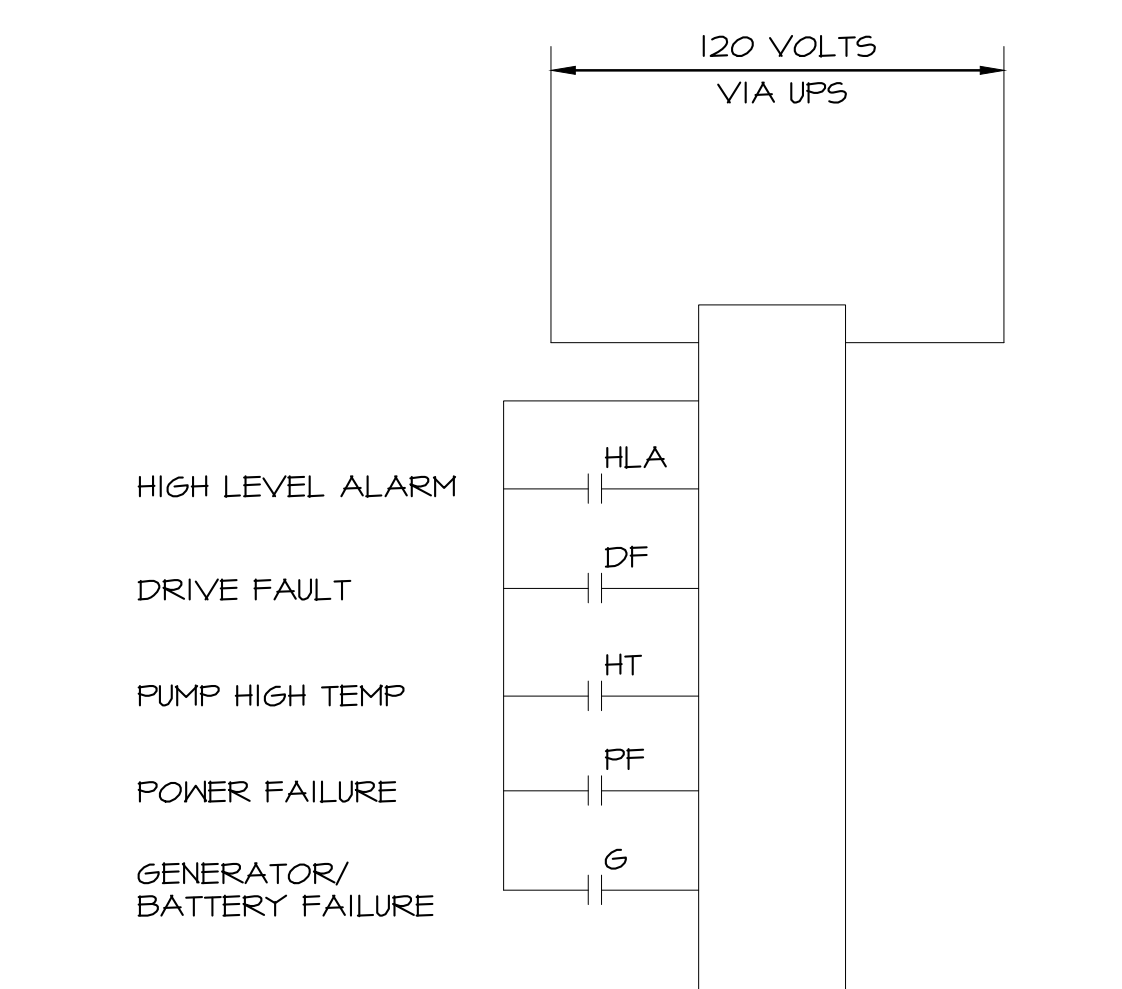




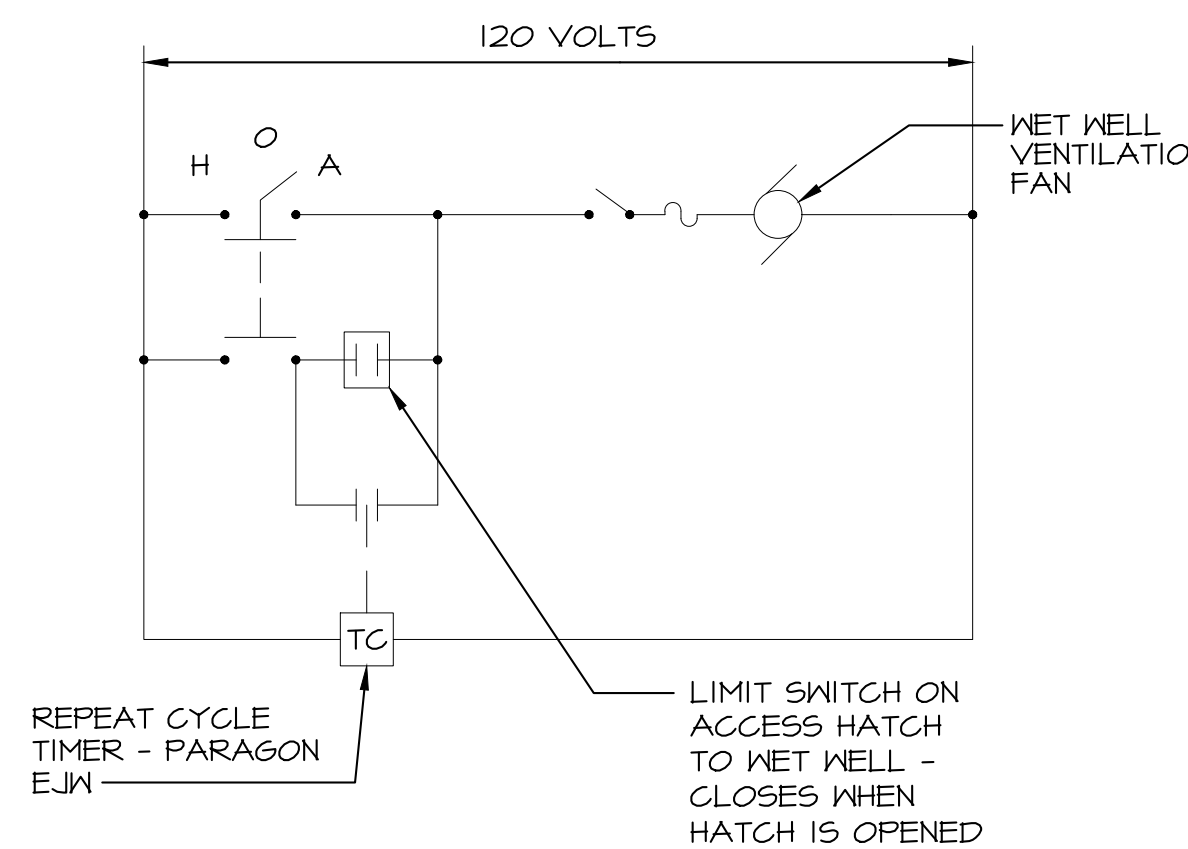
**PUMP STARTER CONTROLS**  
NO SCALE



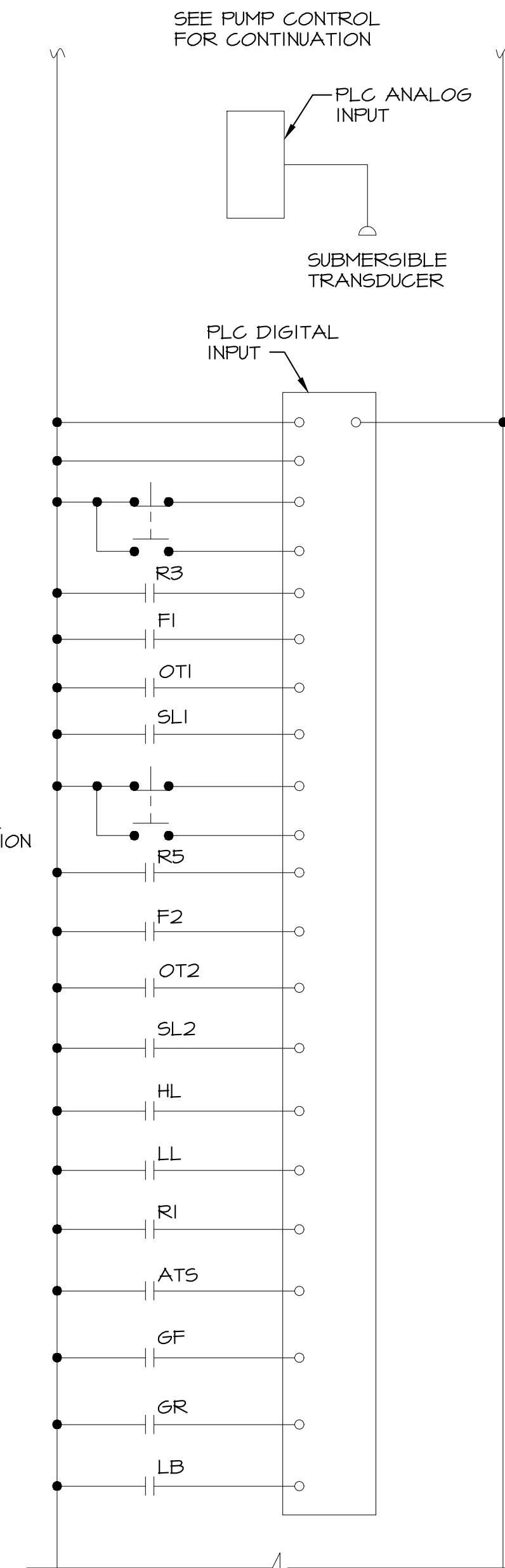
**PUMP CONTROLS**  
NO SCALE



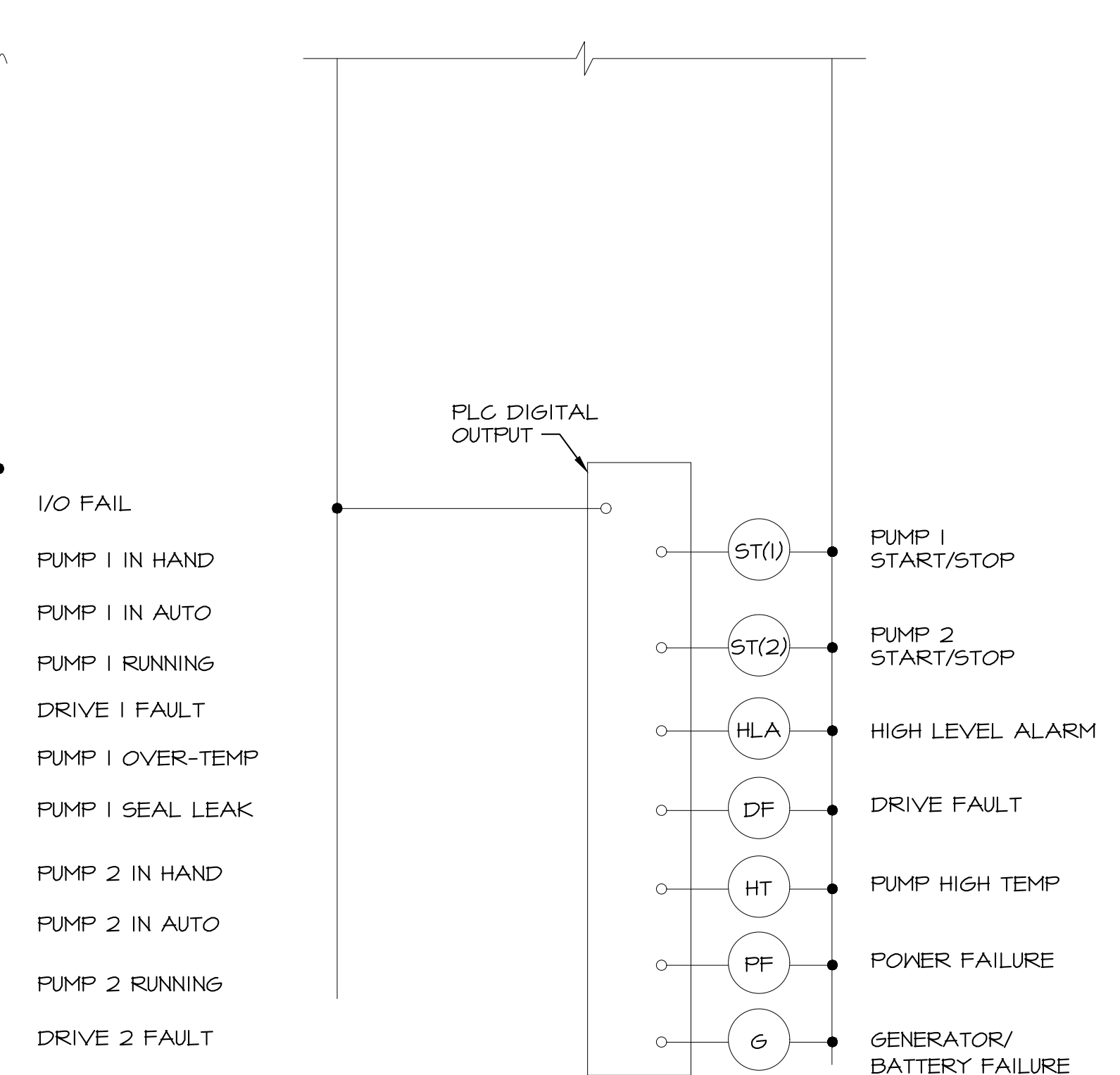
**AUTO DIALER CONNECTIONS**  
NO SCALE



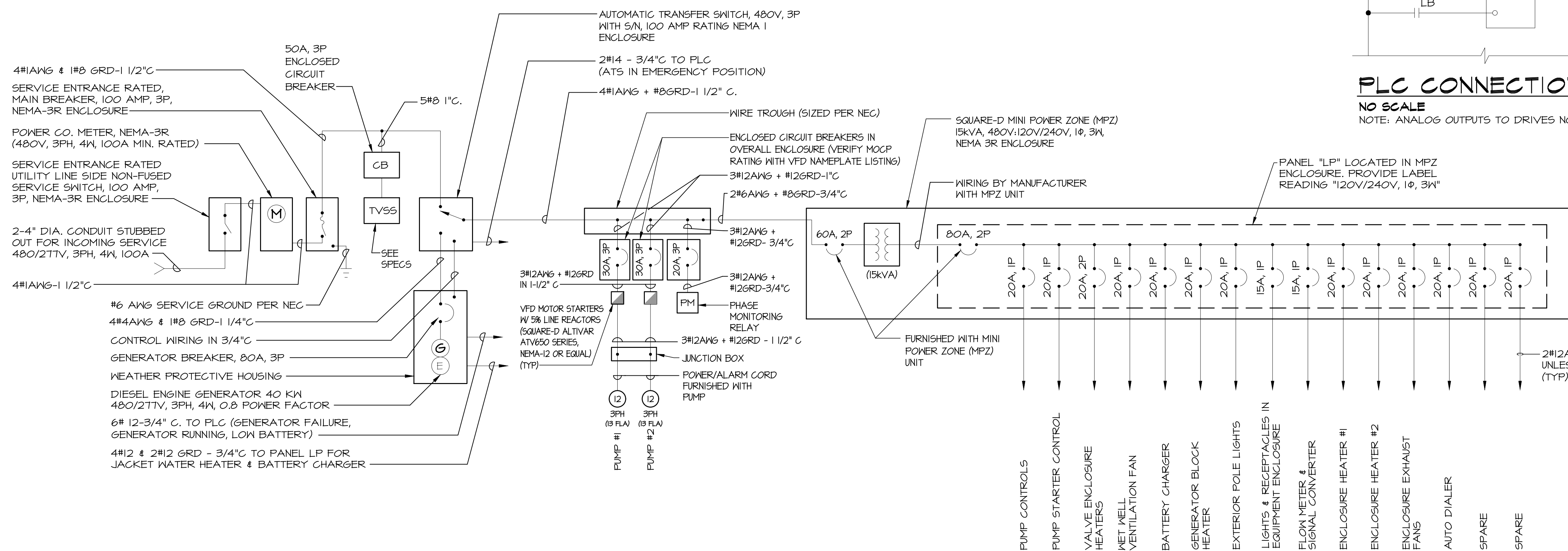
**WET WELL VENTILATION FAN DIAGRAM**  
NO SCALE



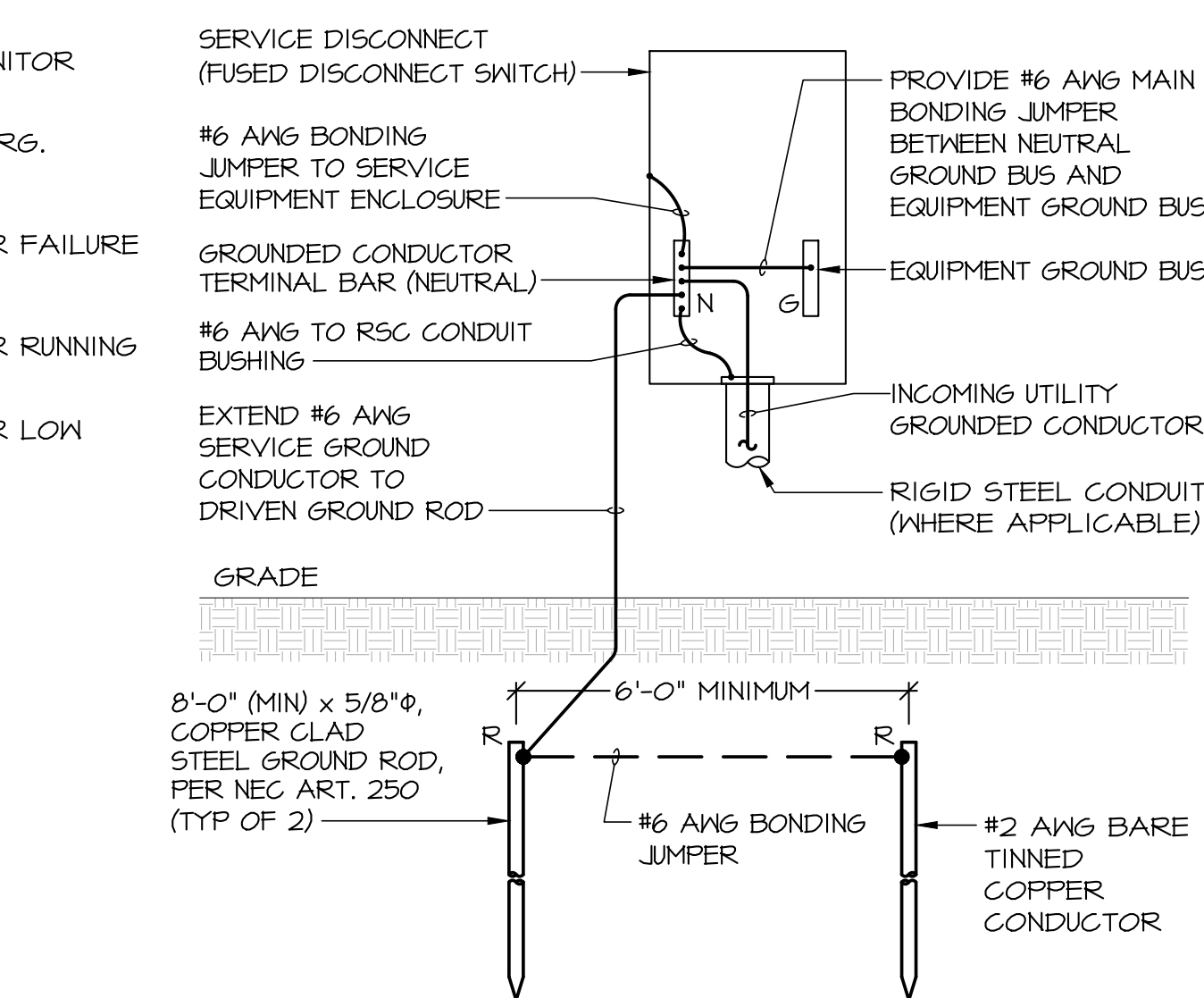
**PLC CONNECTIONS**  
NO SCALE



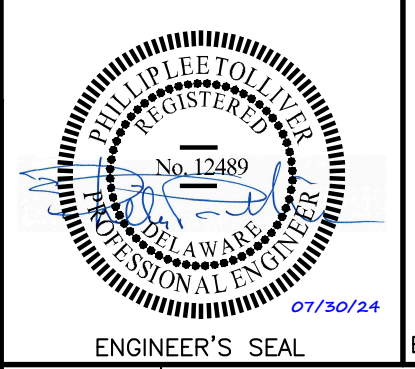
**PLC CONNECTIONS CONT.**  
NO SCALE



**POWER SINGLE LINE DIAGRAM**  
NO SCALE



**DETAIL - TYPICAL ELECTRIC SERVICE GROUNDING ELECTRODE**  
NO SCALE



**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, TIMOTHY SMOT AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF DELAWARE.  
LICENSE No. P.E. # 9642      EXPIRATION DATE: JUNE/30/2026

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**ELECTRICAL DIAGRAMS**  
FOR  
**PARADISE MEADOWS**

|      |           |                  |
|------|-----------|------------------|
| DATE | REVISIONS | JOB NO.: 24011   |
|      |           | SCALE:           |
|      |           | DATE: 07/25/2024 |
|      |           | DRAWN BY: EC     |
|      |           | DESIGN BY: AV    |
|      |           | REVIEW BY: TS    |
|      |           | SHEET: 16 OF 16  |