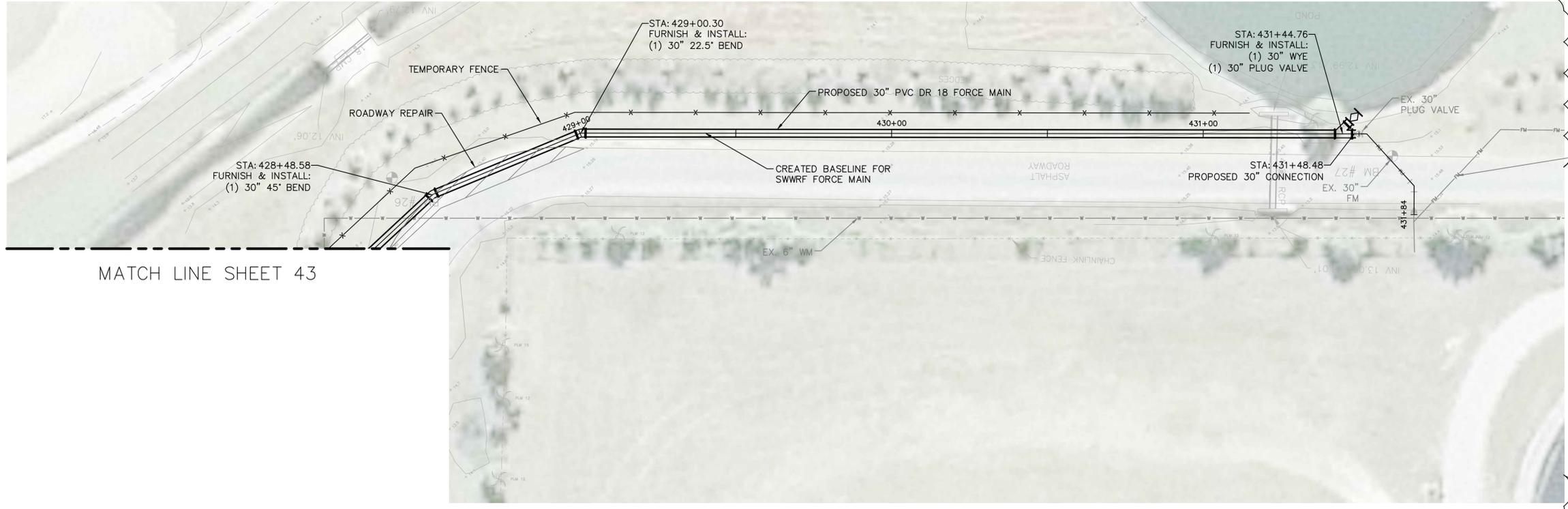
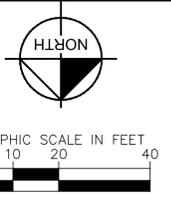


Plotted By: Behrman, Lindsey Sheet: Set: MANATEE COUNTY FMTM REHABILITATION Layout: 44 PLAN & PROFILE February 17, 2017 11:02:51am K:\Tom_civil\148400 - monatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-0.1 SWWRF PLAN & PROFILE.dwg

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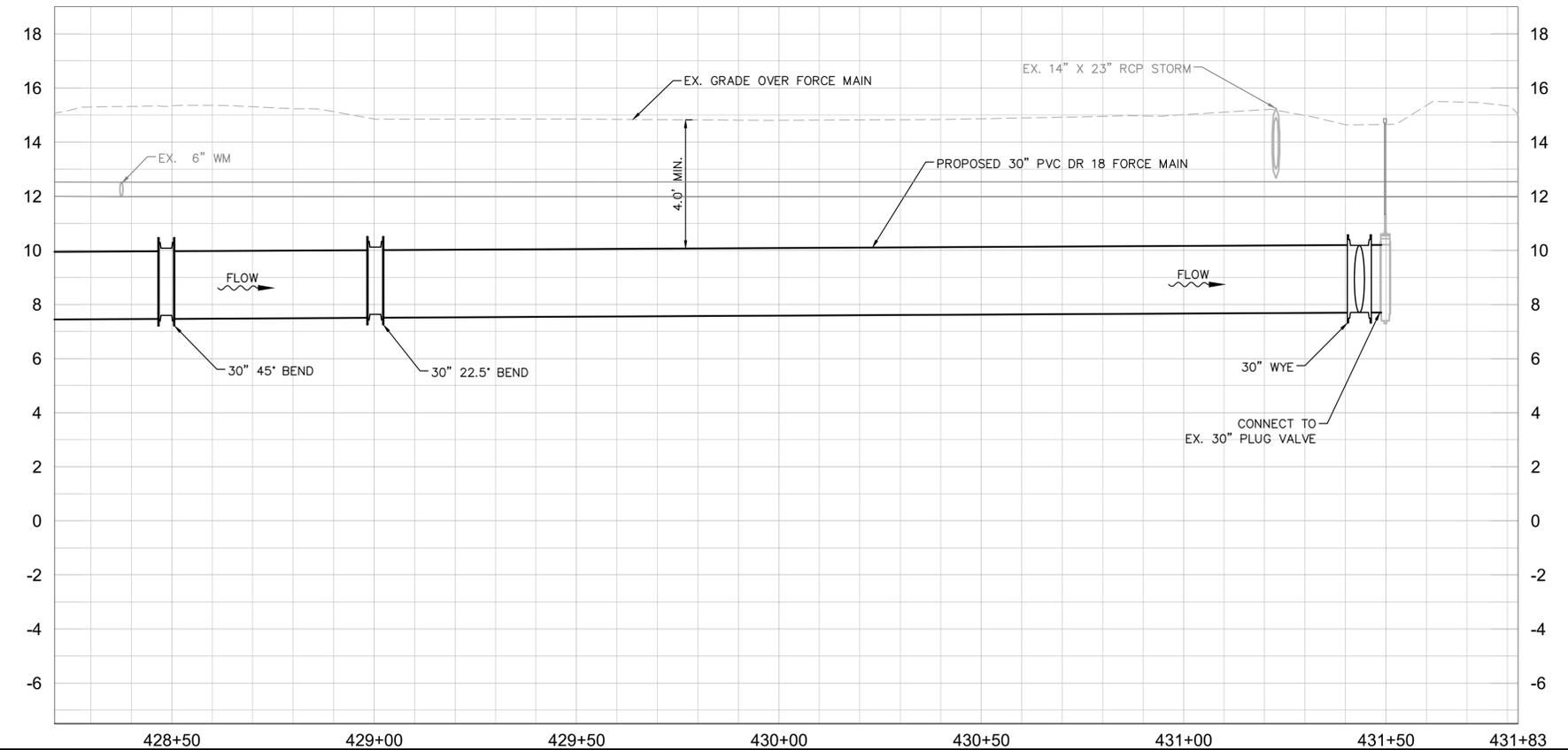
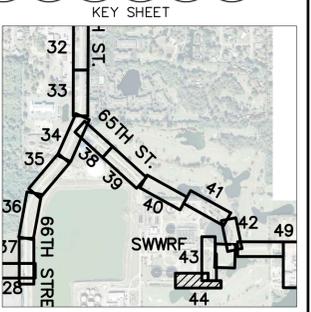


MATCH LINE SHEET 43



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

- NOTES:
1. CONTRACTOR SHALL MARK AND IDENTIFY ALL TREES WITHIN HIS/HERS PROPOSED WORK ZONE THAT WILL NEED TO BE REMOVED. ONCE COMPLETED CONTRACTOR SHALL NOTIFY OWNER/ENGINEER FOR APPROVAL TO REMOVE TREES.
 2. REFER TO SHEET 2 FOR SUE INFORMATION.
 3. CONTRACTOR SHALL PROVIDE A TEMPORARY FENCE TO PROTECT CONSTRUCTION AND LANDSCAPING.
 4. CONTRACTOR SHALL PROVIDE MEANS FOR A TEMPORARY DRIVE TO ALLOW ACCESS TO GOLF COURSE MAINTENANCE AND COUNTY PARKS AND RECREATION.



GROUNDWATER / DEWATERING NOTE:
 THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



| | | |
|------------|------------|---------|
| ADDENDUM 4 | 02/03/2017 | WWW |
| | | |
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| | |
|-------------|-----------|
| KHA PROJECT | 148400003 |
| DATE | SEPT 2016 |
| SCALE | AS SHOWN |
| DESIGNED BY | AMM |
| DRAWN BY | JRT |
| CHECKED BY | WWW |

Manatee County
FLORIDA

FORCE MAIN 1M REHABILITATION

MANATEE COUNTY

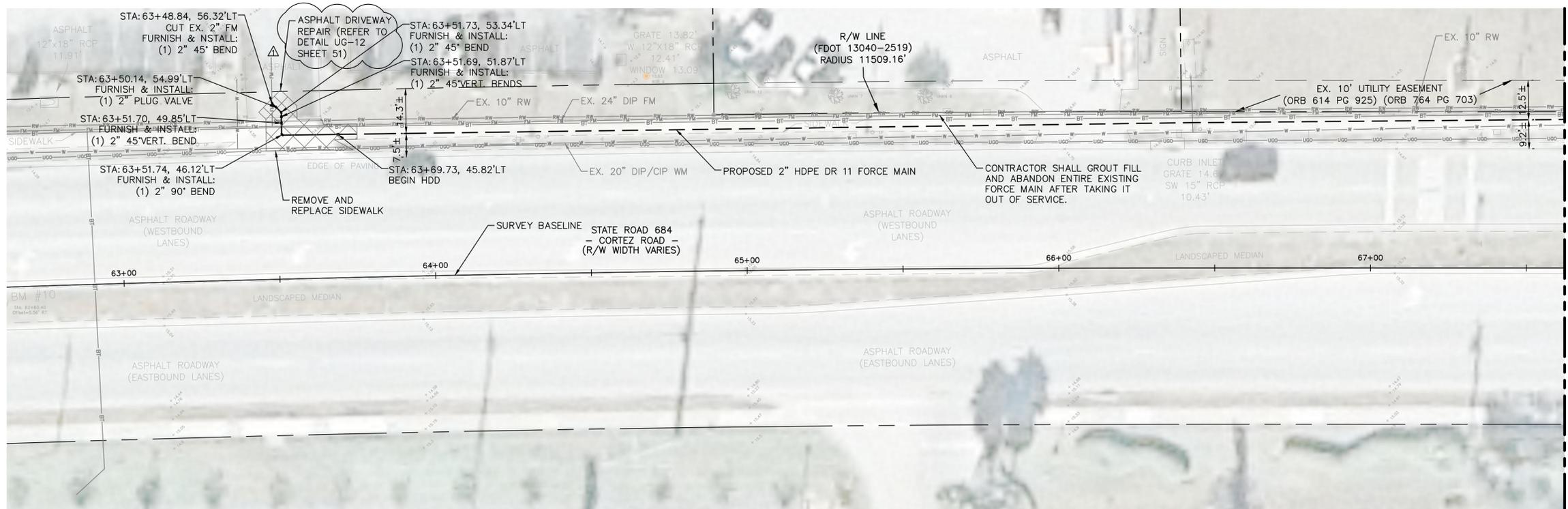
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|-----------------------|--------------------|
| LICENSED PROFESSIONAL | W. WADE WOOD, P.E. |
| FL LICENSE NUMBER | 69051 |
| FL DATE: | |

PLAN & PROFILE (SWWRF)

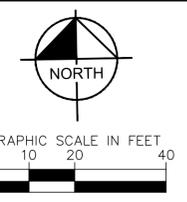
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| SHEET NUMBER | 44 |
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K:\tom_civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\0-8 CORTEZ to 66th PLAN & PROFILE.dwg
 By: Bohmann, Lindsey Sheet Set: MANATEE COUNTY FMM REHABILITATION Layout: 45 PLAN & PROFILE February 17, 2017 10:08:34am

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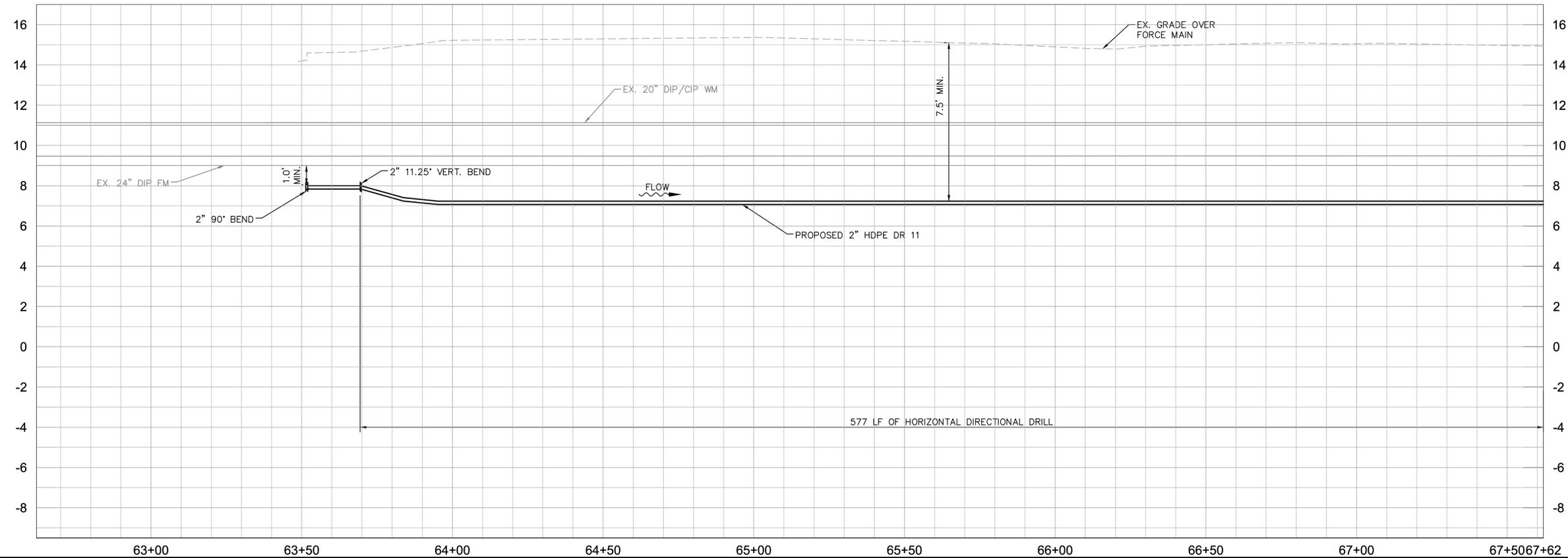
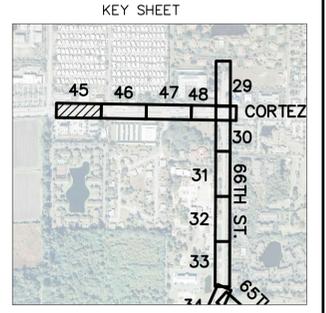


MATCH LINE SHEET 46



HORIZONTAL SCALE = 1"=20'
 VERTICAL SCALE = 1"=3'

NOTE:
 1. MILL & RESURFACE TRAVEL LANE EFFECTED BY DRIVEWAY REPAIR



GROUNDWATER / DEWATERING NOTE:
 THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



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| ADDENDUM 4 | 02/03/2017 | WWW |
| No. | REVISIONS | DATE BY |

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| | |
|-------------|-----------|
| KHA PROJECT | 148400003 |
| DATE | SEPT 2016 |
| SCALE | AS SHOWN |
| DESIGNED BY | AMM |
| DRAWN BY | JRT |
| CHECKED BY | WWW |

Manatee County
FORCE MAIN 1M REHABILITATION
 MANATEE COUNTY

| | |
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| LICENSED PROFESSIONAL | W. WADE WOOD, P.E. |
| FL LICENSE NUMBER | 69051 |

PLAN & PROFILE (CORTEZ)
 FL DATE:

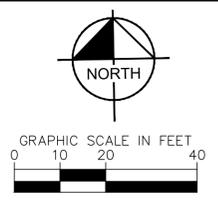
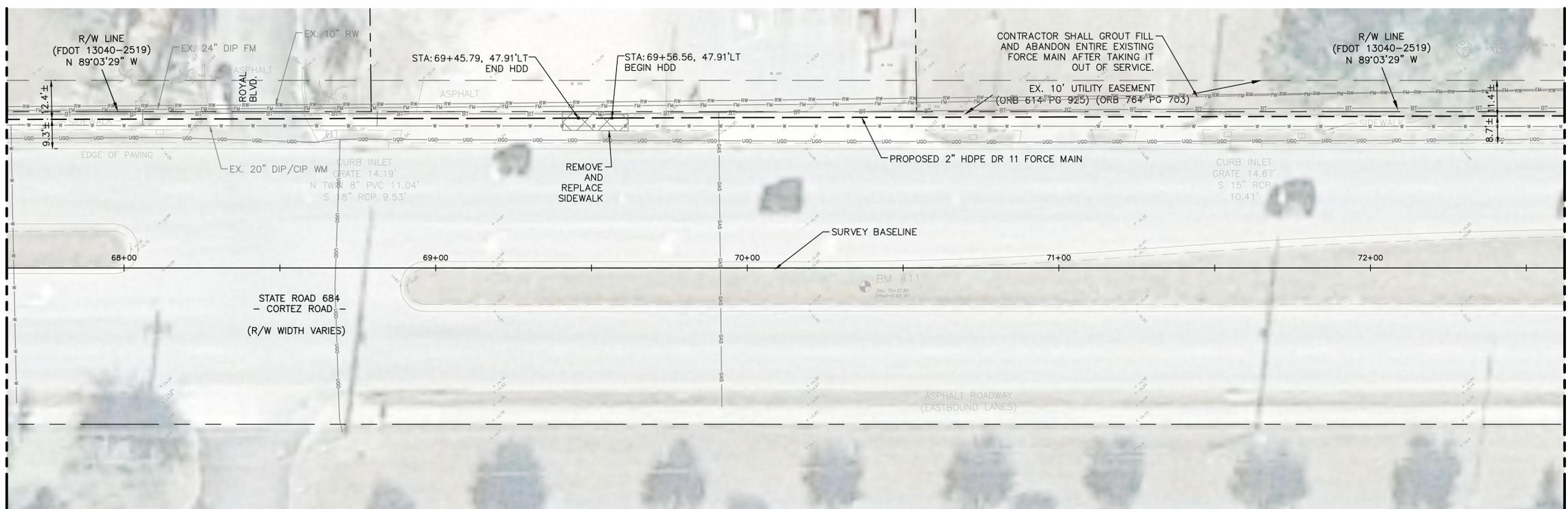
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|--------------|----|
| SHEET NUMBER | 45 |
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By: Kender, Madeline Sheet Set: MANATEE COUNTY F11M REHABILITATION Layout: 46 PLAN & PROFILE September 06, 2016 05:25:13pm K:\com_civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-08 CORTEZ to 66th PLAN & PROFILE.dwg

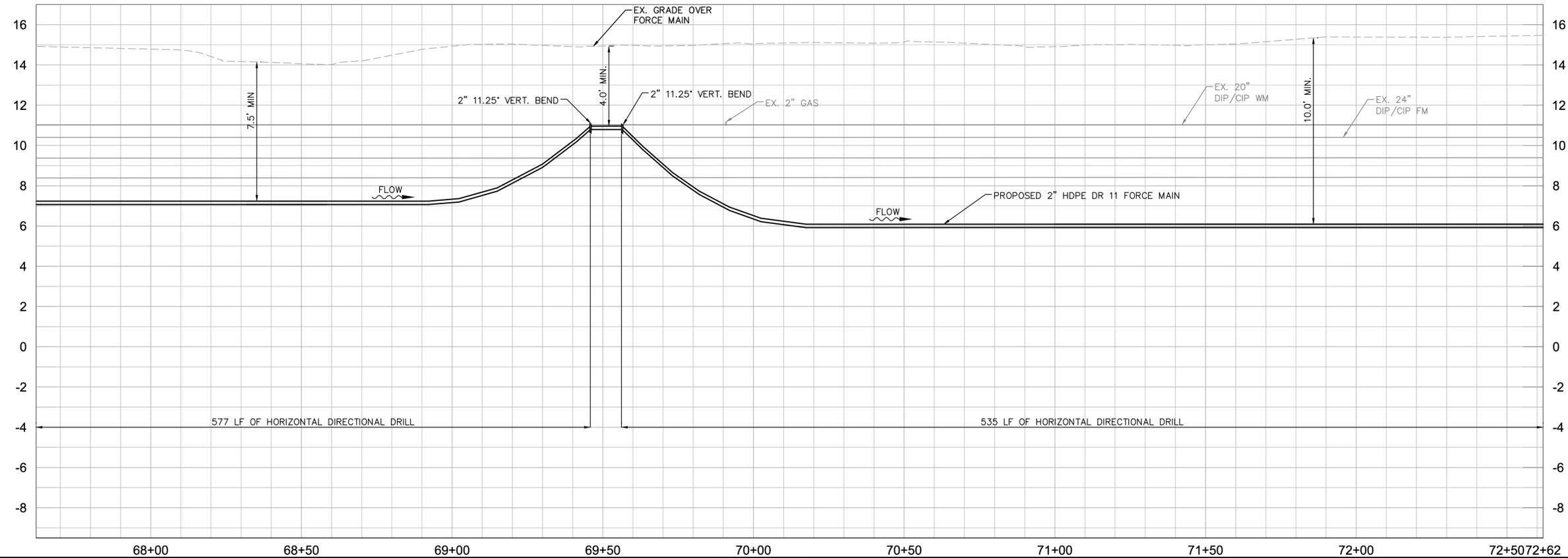
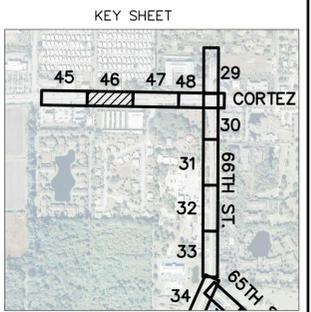
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MATCH LINE SHEET 45

MATCH LINE SHEET 47



HORIZONTAL SCALE = 1"=20'
 VERTICAL SCALE = 1"=3'



GROUNDWATER / DEWATERING NOTE:
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|-------------|-----------|
| KHA PROJECT | 148400003 |
| DATE | SEPT 2016 |
| SCALE | AS SHOWN |
| DESIGNED BY | AMM |
| DRAWN BY | JRT |
| CHECKED BY | WWW |


FORCE MAIN 1M REHABILITATION
 MANATEE COUNTY

| | |
|-----------------------|--------------------|
| LICENSED PROFESSIONAL | W. WADE WOOD, P.E. |
| FL LICENSE NUMBER | 69051 |
| FL DATE: | |

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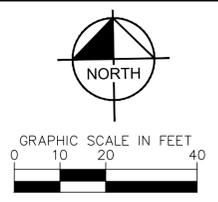
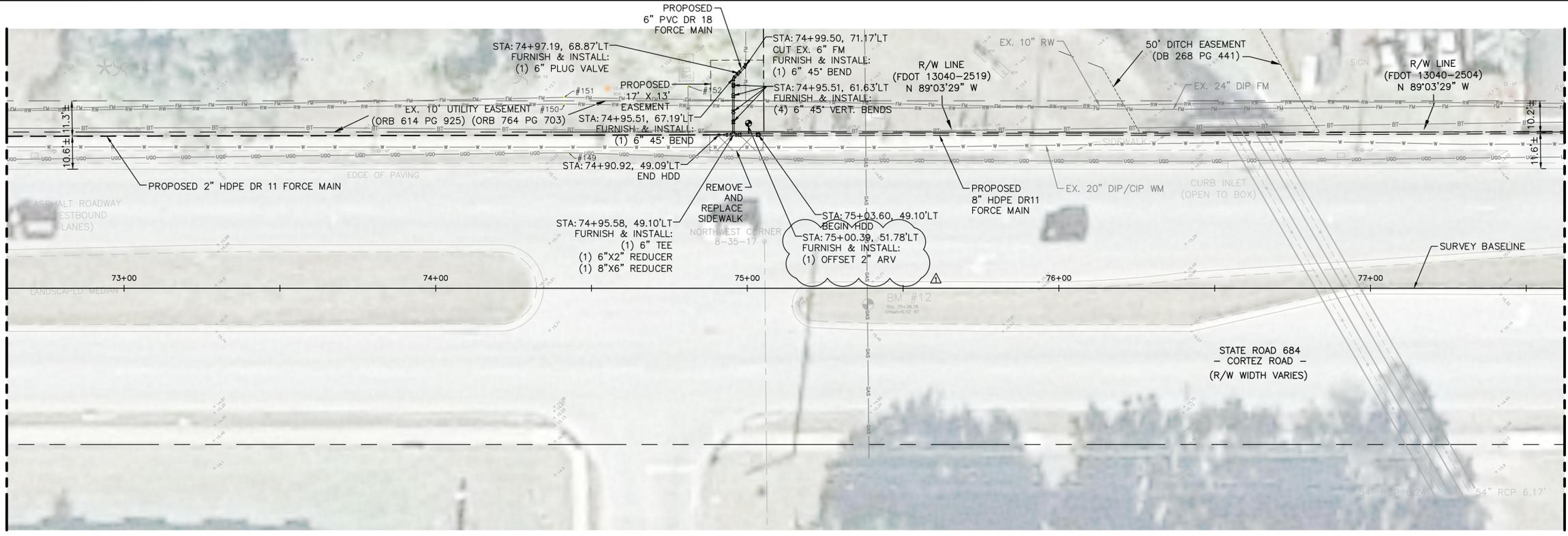
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| SHEET NUMBER | 46 |
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K:\manatee\civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-0.8 CORTEZ to 66th PLAN & PROFILE.dwg

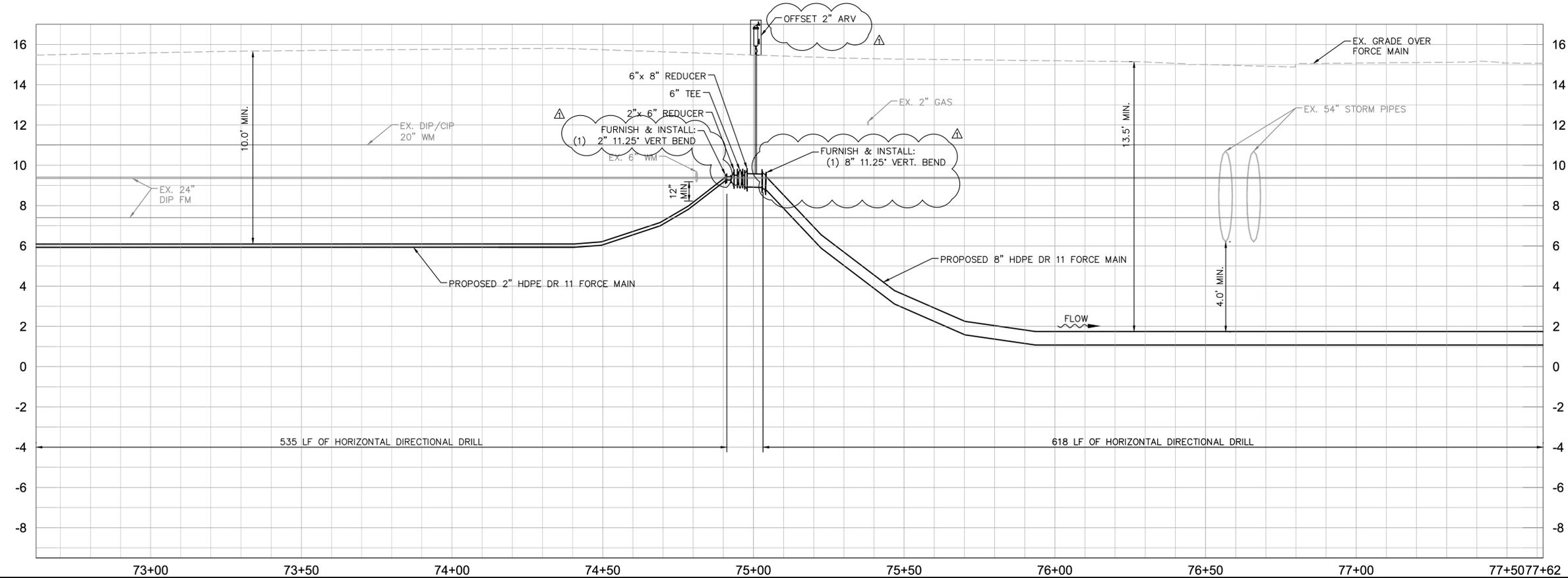
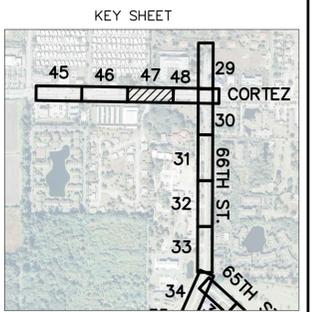
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MATCH LINE SHEET 46

MATCH LINE SHEET 48



HORIZONTAL SCALE = 1"=20'
 VERTICAL SCALE = 1"=3'



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| KHA PROJECT | 148400003 |
| DATE | SEPT 2016 |
| SCALE | AS SHOWN |
| DESIGNED BY | AMM |
| DRAWN BY | JRT |
| CHECKED BY | WWW |

Manatee County
FLORIDA
FORCE MAIN 1M REHABILITATION

| | |
|-----------------------|--------------------|
| LICENSED PROFESSIONAL | W. WADE WOOD, P.E. |
| FL LICENSE NUMBER | 69051 |

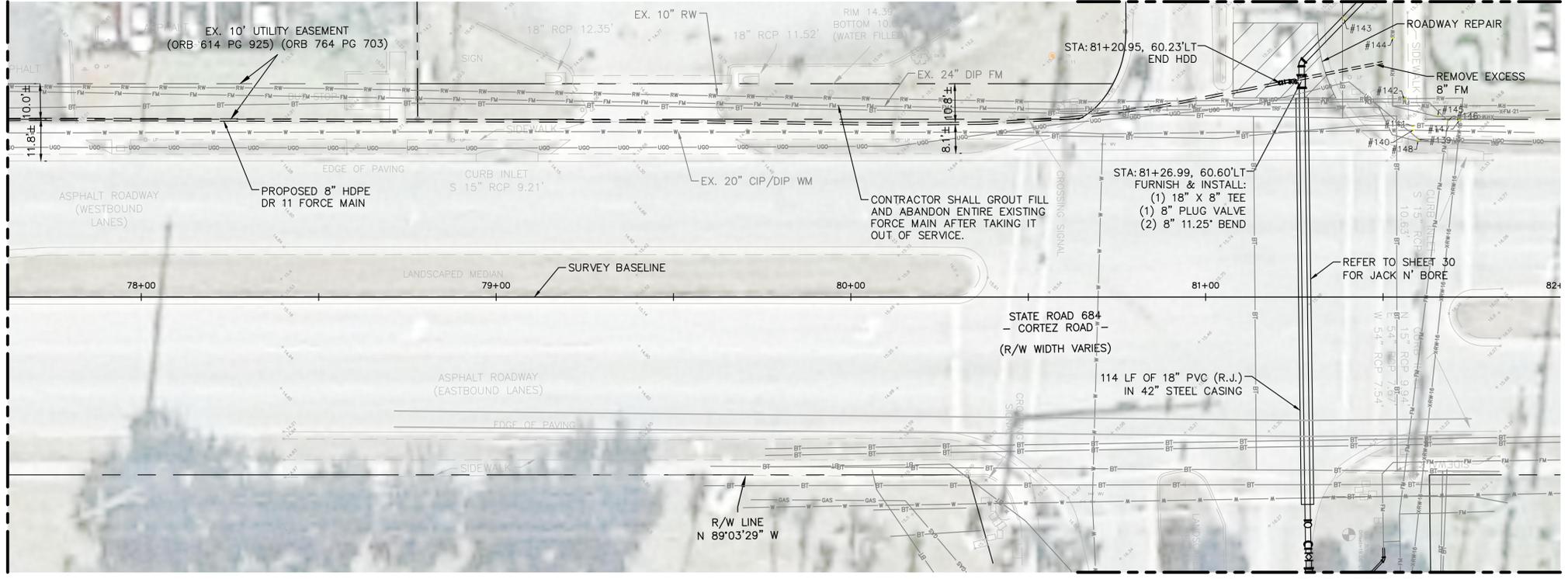
PLAN & PROFILE (CORTEZ)

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| SHEET NUMBER | 47 |
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 Sheet Set: MANATEE COUNTY F1M REHABILITATION Layout: 48 PLAN & PROFILE September 06, 2016 05:25:47pm
 By: Kender, Madeline

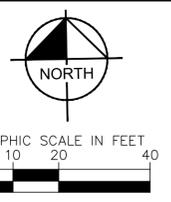
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MATCH LINE SHEET 47

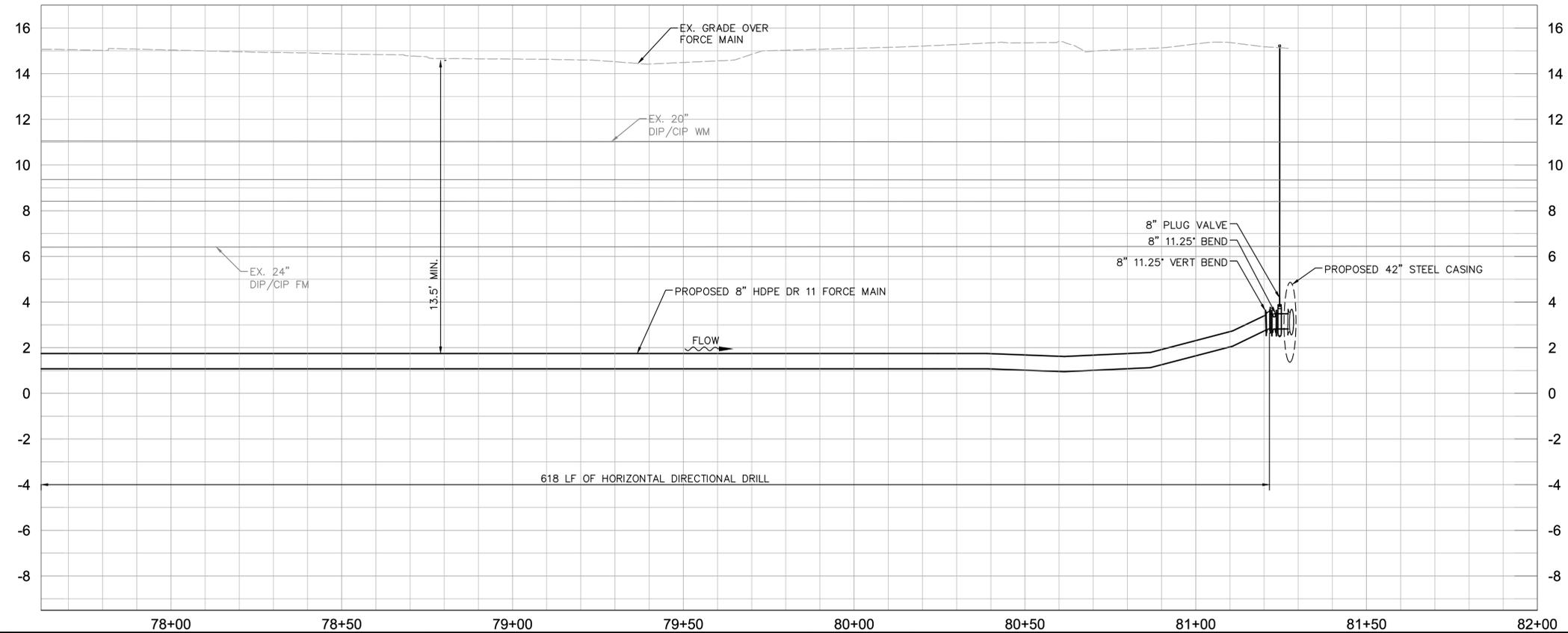
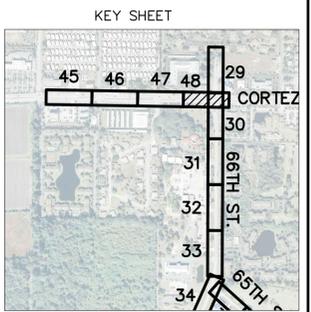


MATCH LINE SHEET 29

MATCH LINE SHEET 30



HORIZONTAL SCALE = 1"=20'
VERTICAL SCALE = 1"=3'



GROUNDWATER / DEWATERING NOTE:
 THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



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| DATE SEPT 2016 |
| SCALE AS SHOWN |
| DESIGNED BY AMM |
| DRAWN BY JRT |
| CHECKED BY WWW |

Manatee County
 FLORIDA

FORCE MAIN 1M REHABILITATION

MANATEE COUNTY

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|----------------------------|
| LICENSED PROFESSIONAL |
| W. WADE WOOD, P.E. |
| FL LICENSE NUMBER 69051 |
| FL DATE: |

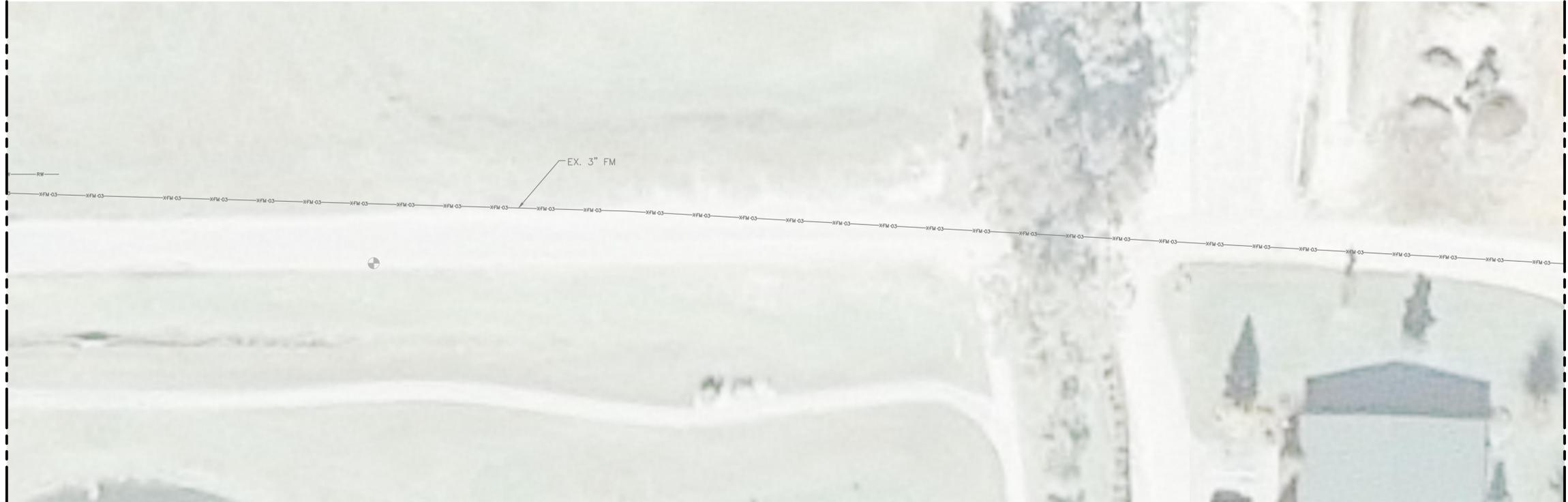
PLAN & PROFILE (CORTEZ)

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| SHEET NUMBER |
| 48 |

Plotted By: Kender, Madeline Sheet Set: MANATEE COUNTY FMM REHABILITATION Layout: 49 September 06, 2016 05:28:13pm K:\tom_civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\SMALL FORCE MAIN PLANS.dwg

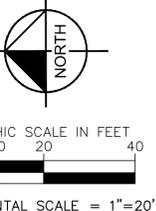
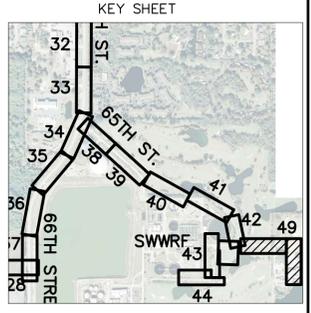
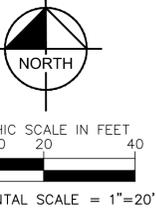
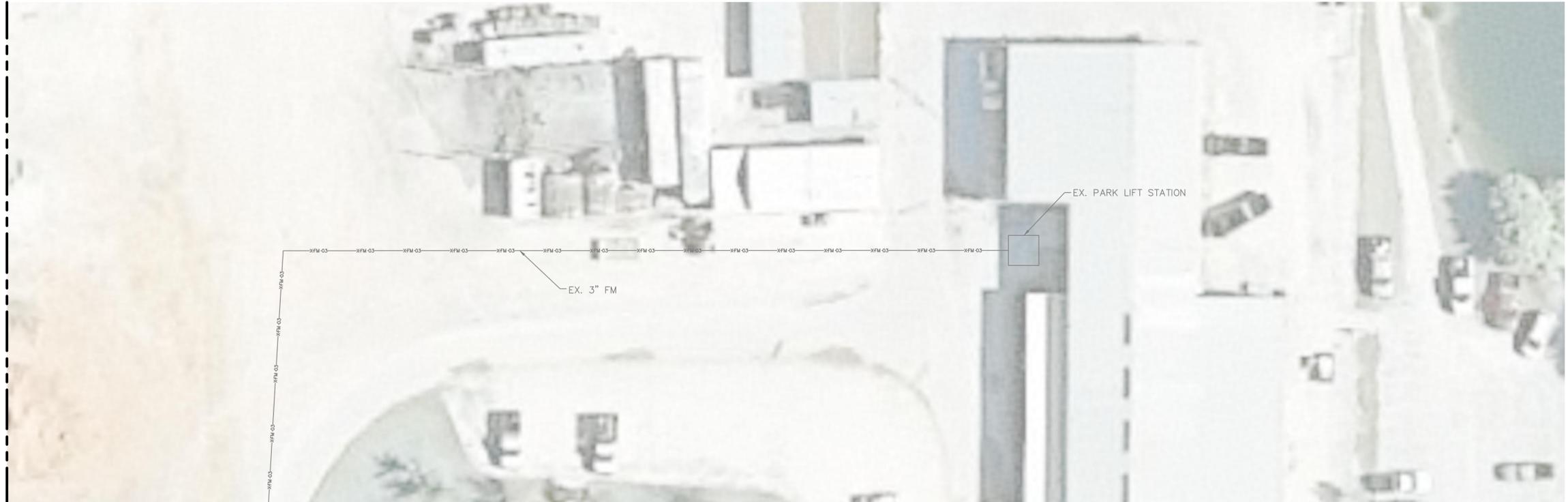
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MATCH LINE SHEET 42



MATCH LINE THIS SHEET

MATCH LINE THIS SHEET



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| KHA PROJECT 148400003 |
| DATE SEPT 2016 |
| SCALE AS SHOWN |
| DESIGNED BY AMM |
| DRAWN BY JRT |
| CHECKED BY WWW |

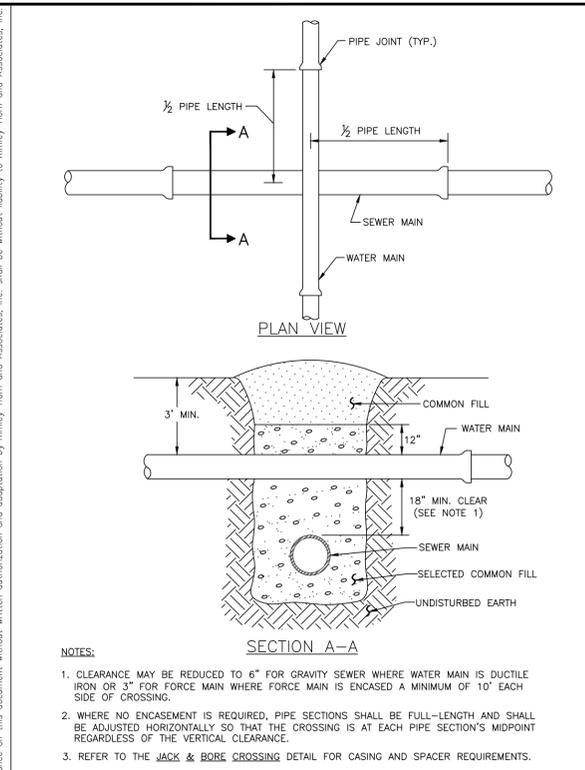
Manatee County
FORCE MAIN 1M REHABILITATION
 MANATEE COUNTY FL DATE:

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| LICENSED PROFESSIONAL |
| W. WADE WOOD, P.E. |
| FL LICENSE NUMBER 69051 |

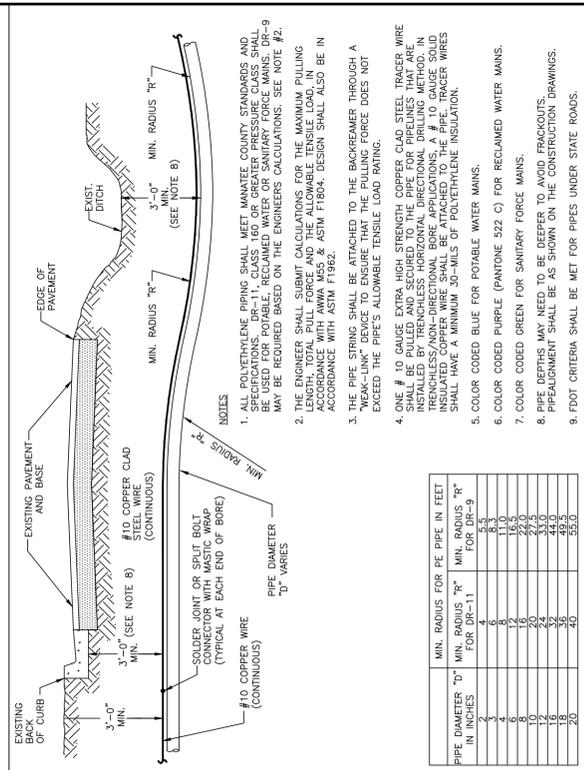
EXISTING PARK FORCE MAIN PLAN

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| SHEET NUMBER |
| 49 |

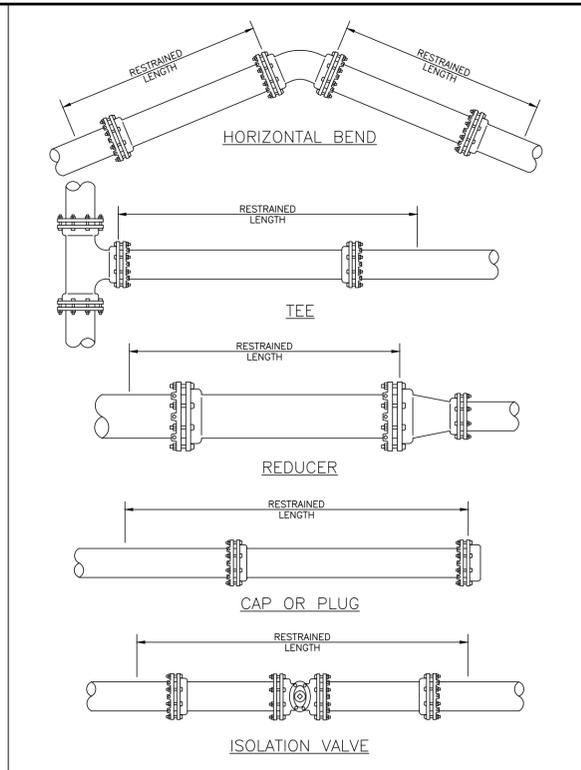
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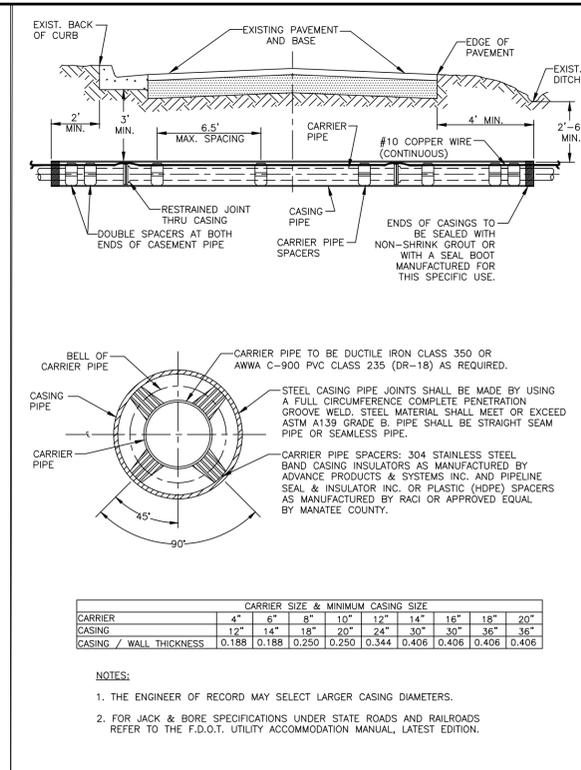
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | TYPICAL NEW WATER & SEWER LINE CROSSING | UG-2 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 102 |



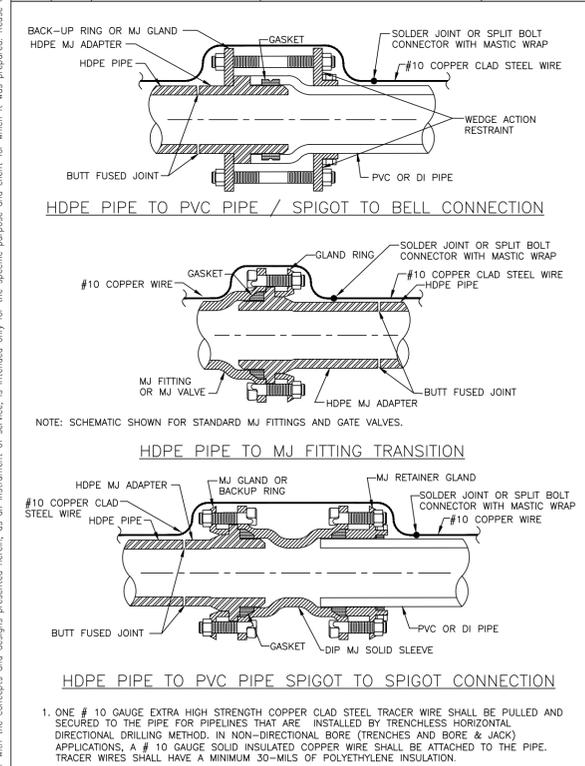
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | DIRECTIONAL BORE ROADWAY CROSSING | UG-4 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 104 |



| | | | |
|--------------------------------------------------|---------------|-----------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | RESTRAINED LENGTHS FOR PIPE | UG-10 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 110 |



| | | | |
|--------------------------------------------------|---------------|----------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | JACK & BORE CROSSING | UG-3 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 103 |

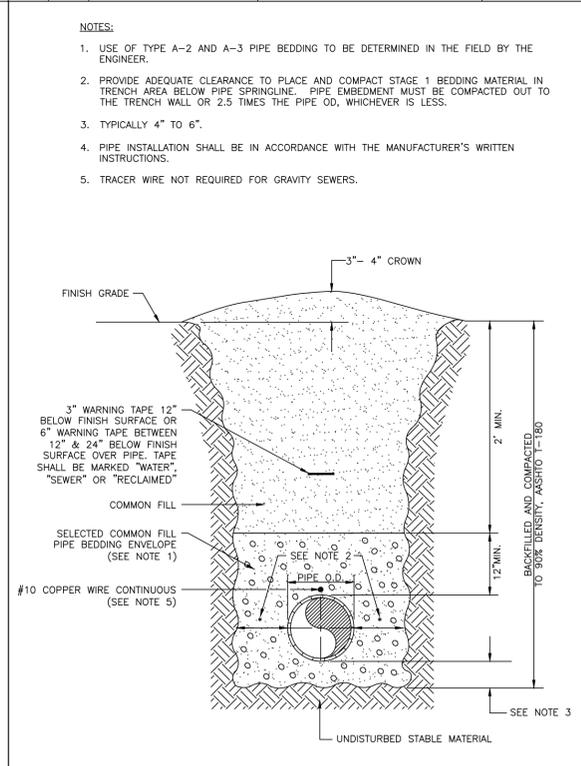


| | | | |
|--------------------------------------------------|---------------|--------------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | HDPE TO PVC OR DI PIPE ADAPTER | UG-6 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 106 |

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

| MAIN PIPE SIZE | HORIZ. BENDS | | | TEES | | | REDUCERS | | | PLUGS & VALVES |
|----------------|--------------|-----|-------|------|--------|------|----------|------|--------|----------------|
| | 90° | 45° | 22.5° | SIZE | LENGTH | SIZE | LENGTH | SIZE | LENGTH | |
| 24 | 90 | 38 | 18 | X24 | X20 | X16 | X12 | X8 | X4 | 214 |
| 20 | 78 | 32 | 16 | X20 | X16 | X12 | X8 | X4 | X1 | 184 |
| 16 | 66 | 27 | 13 | X16 | X12 | X8 | X4 | X1 | X1 | 151 |
| 12 | 52 | 22 | 10 | X12 | X8 | X4 | X1 | X1 | X1 | 118 |
| 10 | 44 | 18 | 9 | X10 | X6 | X4 | X1 | X1 | X1 | 100 |
| 8 | 37 | 15 | 7 | X8 | X4 | X1 | X1 | X1 | X1 | 83 |
| 6 | 29 | 12 | 6 | X6 | X4 | X1 | X1 | X1 | X1 | 63 |
| 4 | 21 | 8 | 4 | X4 | X1 | X1 | X1 | X1 | X1 | 45 |

| | | | |
|--------------------------------------------------|---------------|---------------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | RESTRAINED LENGTHS FOR PVC PIPE | UG-8 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 | PAGE 108 |



| | | | |
|--------------------------------------------------|---------------|------------------------------------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING | UG-11 |
| REV. BY WRT/KE | DATE 03/11 | MAY 10, 2011 | PAGE 111 |

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED

| FITTING TYPE | PIPE SIZE | | | | | | | | | | | 200psi | | |
|---------------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|-----|-----|
| | 4" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" | 36" | 30" | 36" |
| 90° HORIZ. BEND | 17 | 24 | 31 | 37 | 43 | 55 | 60 | 66 | 76 | 119 | 136 | 119 | 136 | |
| 45° HORIZ. BEND | 8 | 10 | 13 | 16 | 18 | 23 | 25 | 28 | 32 | 49 | 56 | 49 | 56 | |
| 22.5° HORIZ. BEND | 4 | 5 | 7 | 8 | 9 | 11 | 12 | 13 | 15 | 24 | 27 | 24 | 27 | |
| 11.25° HORIZ. BEND | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 12 | 14 | 12 | 14 | |
| 90° VERT. OFFSET | UPPER BEND | 38 | 53 | 70 | 84 | 99 | 115 | 140 | 153 | 179 | 285 | 330 | 285 | 330 |
| | LOWER BEND | 38 | 53 | 70 | 84 | 99 | 115 | 140 | 153 | 179 | 285 | 330 | 285 | 330 |
| 45° VERT. OFFSET | UPPER BEND | 16 | 22 | 29 | 35 | 41 | 53 | 58 | 64 | 74 | 118 | 137 | 118 | 137 |
| | LOWER BEND | 4 | 6 | 7 | 9 | 10 | 13 | 14 | 15 | 18 | 29 | 33 | 29 | 33 |
| 22.5° VERT. OFFSET | UPPER BEND | 8 | 11 | 14 | 17 | 20 | 26 | 28 | 31 | 36 | 57 | 66 | 57 | 66 |
| | LOWER BEND | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 8 | 9 | 14 | 16 | 14 | 16 |
| 11.25° VERT. OFFSET | UPPER BEND | 4 | 6 | 7 | 9 | 10 | 13 | 14 | 16 | 18 | 29 | 33 | 29 | 33 |
| | LOWER BEND | 1 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 5 | 7 | 8 | 7 | 8 |
| PLUG / IN-LINE VALVE | 38" | 53 | 70 | 84 | 99 | 115 | 140 | 153 | 179 | 285 | 330 | 285 | 330 | |
| | 4" x | 20 | - | - | - | - | - | - | - | - | - | - | - | |
| | 6" x | 11 | 35 | - | - | - | - | - | - | - | - | - | - | |
| | 8" x | 2 | 29 | 51 | - | - | - | - | - | - | - | - | - | |
| | 10" x | 1 | 22 | 46 | 65 | - | - | - | - | - | - | - | - | |
| | 12" x | 1 | 15 | 41 | 61 | 79 | - | - | - | - | - | - | - | |
| | 16" x | 1 | 1 | 30 | 52 | 72 | 107 | - | - | - | - | - | - | |
| | 18" x | 1 | 1 | 24 | 47 | 68 | 104 | 120 | - | - | - | - | - | |
| | 20" x | 1 | 1 | 18 | 42 | 64 | 101 | 117 | 133 | - | - | - | - | |
| | 24" x | 1 | 1 | 5 | 32 | 55 | 95 | 112 | 128 | 158 | - | - | - | |
| | 30" x | 1 | 1 | 1 | 15 | 42 | 84 | 103 | 120 | 152 | 193 | - | - | |
| | 36" x | 1 | 1 | 1 | 1 | 26 | 73 | 93 | 111 | 144 | 187 | 226 | - | |
| TEE (BRANCH RESTRAINT) | 6" x | 28 | - | - | - | - | - | - | - | - | - | - | - | |
| | 8" x | 50 | 30 | - | - | - | - | - | - | - | - | - | - | |
| | 10" x | 68 | 52 | 28 | - | - | - | - | - | - | - | - | - | |
| | 12" x | 86 | 72 | 52 | 29 | - | - | - | - | - | - | - | - | |
| | 16" x | 117 | 107 | 93 | 75 | 54 | - | - | - | - | - | - | - | |
| | 18" x | 131 | 122 | 110 | 95 | 76 | 29 | - | - | - | - | - | - | |
| REDUCER (LARGER PIPE RESTRAINT) | 20" x | 146 | 138 | 126 | 113 | 96 | 54 | 29 | - | - | - | - | - | |
| | 24" x | 173 | 166 | 157 | 146 | 132 | 98 | 77 | 54 | - | - | - | - | |
| | 30" x | 279 | 272 | 262 | 251 | 237 | 201 | 179 | 155 | 100 | - | - | - | |
| | 36" x | 325 | 320 | 312 | 303 | 291 | 262 | 245 | 225 | 181 | 100 | - | - | |

| | | | |
|--------------------------------------------------|---------------|------------------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | ADDITIONAL RESTRAIN LENGTHS DETAIL | UG-11 |
| REV. BY WRT/KE | DATE 03/11 | MAY 10, 2011 | PAGE 111 |

(SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 7.12)

NOTES:

- THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPE-SP TEST PRESSURE-150/200 PSI
TRENCH TYPE-3 SAFETY FACTOR- 1.5
MINIMUM PIPE LENGTH ALONG TEE RUN-5'
DEPTH OF BURY-3' VERTICAL OFFSET-3'
- THE RESTRAINED PIPE LENGTHS APPLY TO PVC PIPE.
- ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF FITTINGS.
- CONTRACTOR TO REFER TO MANATEE COUNTY DETAIL UG-8 FOR RESTRAIN LENGTHS. IF FITTING TYPE OR PIPE SIZE IS NOT SHOWN, REFER TO THIS DETAIL FOR SECONDARY REFERENCE.
- RESTRAINED JOINTS SHALL EXTEND ONE JOINT BEYOND MIN. LENGTH REQUIRED.

GROUNDWATER / DEWATERING NOTE:
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.

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Manatee County
FLORIDA

FORCE MAIN 1M REHABILITATION

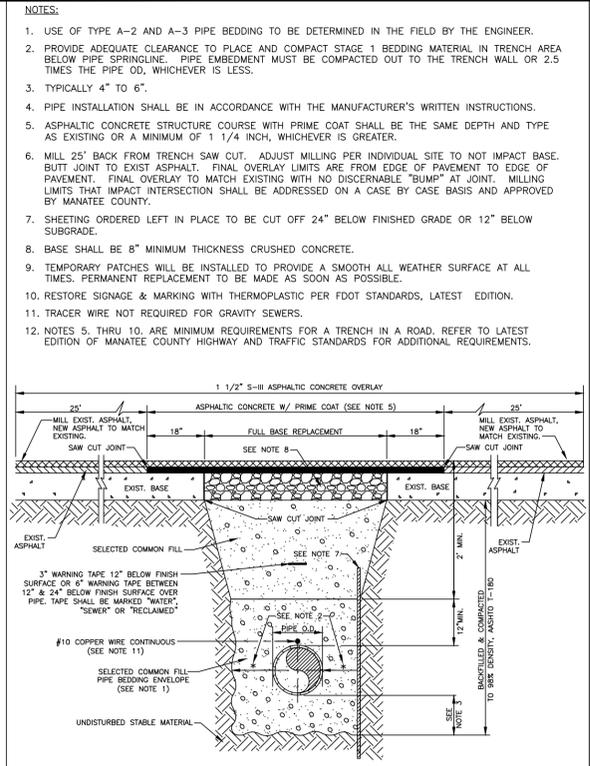
KHA PROJECT 148400003
DATE SEPT 2016
SCALE AS SHOWN
DESIGNED BY AMM
DRAWN BY JRT
CHECKED BY WWW

LICENSED PROFESSIONAL
W. WADE WOOD, P.E.
FL LICENSE NUMBER 69051

CONSTRUCTION DETAILS

SHEET NUMBER
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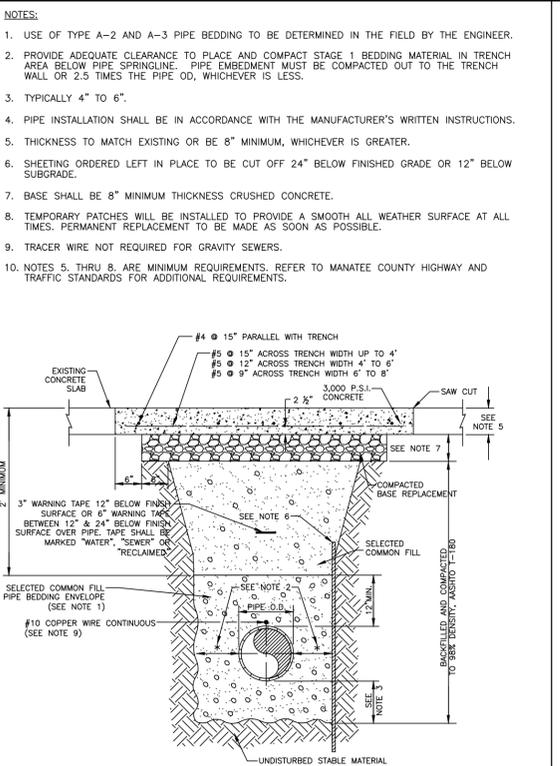
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING | UG-12 |
| REV. BY WRT/KE | DATE 03/11 | MAY 10, 2011 DATE OF APPROVAL | PAGE 112 |

GENERAL NOTES

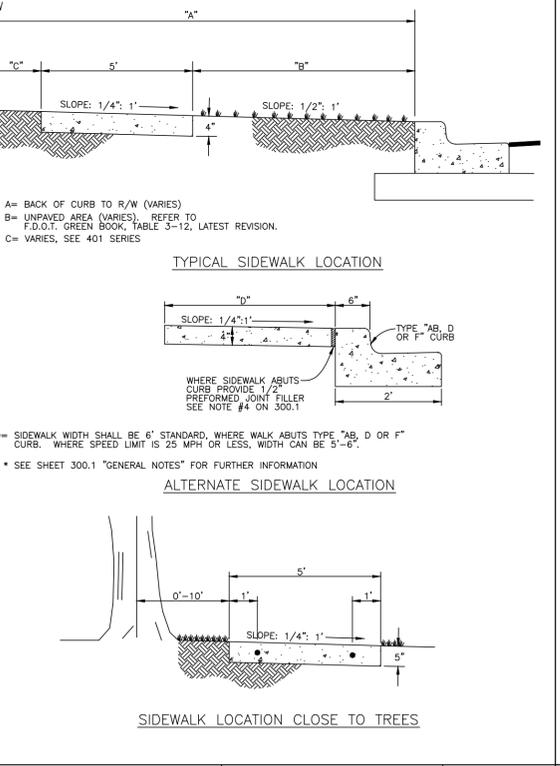
- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK BISECTS A DRIVEWAY THE MINIMUM SHALL BE 6" OF CLASS I CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.
 - SEE SHEETS #101.2 & 101.3.
- ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL DRIVEWAYS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.
- THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE FOOT TRAVEL SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
- EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
- CONTRACTION JOINTS:
OPEN TYPE JOINTS
OPEN TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.
SAWED JOINTS
A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
- SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
- HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
- ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 310, SHEETS 1 & 2.

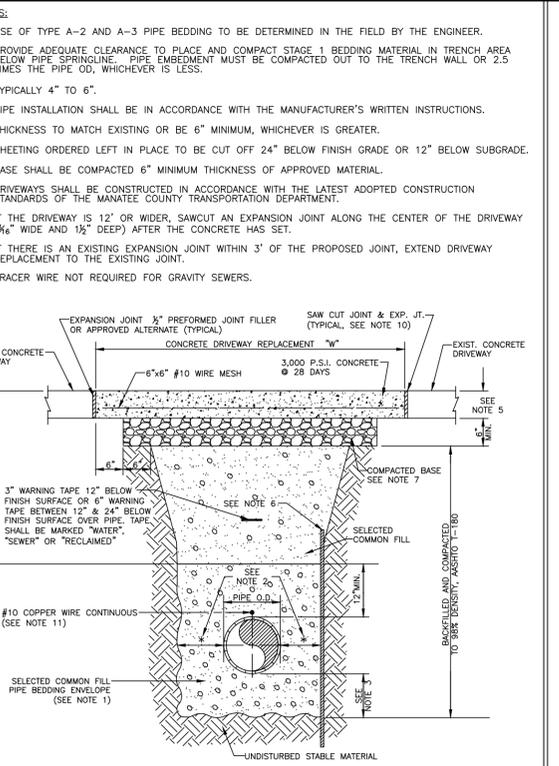
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| MANATEE COUNTY TRANSPORTATION DEPARTMENT | | SIDEWALKS GENERAL NOTES | 301.0 |
| REV. BY DATE | DATE 6/12/07 | DATE OF B.O.C.C. APPROVAL | |



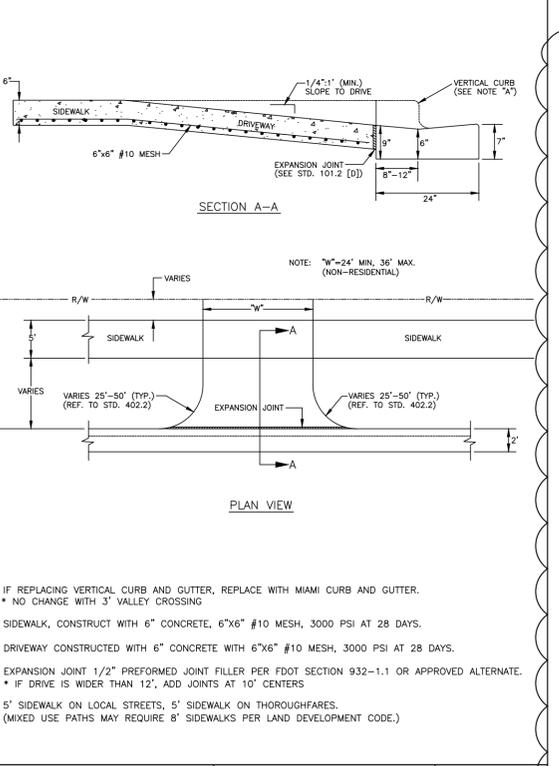
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING | UG-13 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 DATE OF APPROVAL | PAGE 113 |



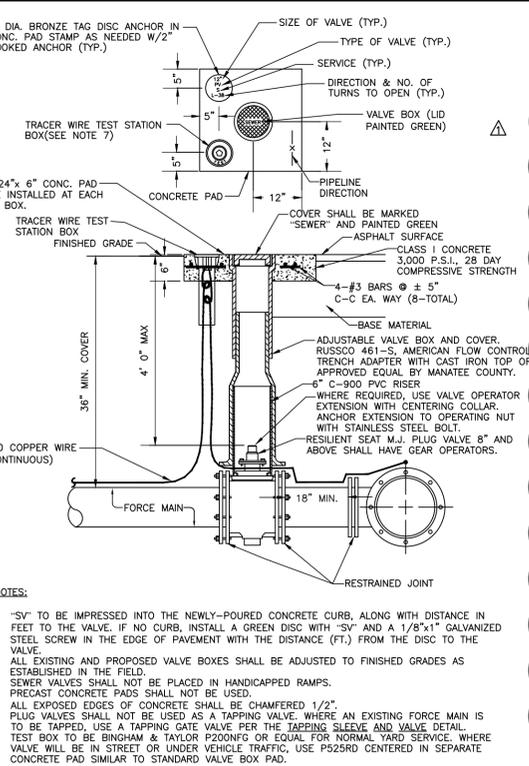
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| MANATEE COUNTY TRANSPORTATION DEPARTMENT | | SIDEWALK REQUIREMENTS | 301.1 |
| REV. BY DATE | DATE 6/12/07 | DATE OF B.O.C.C. APPROVAL | |



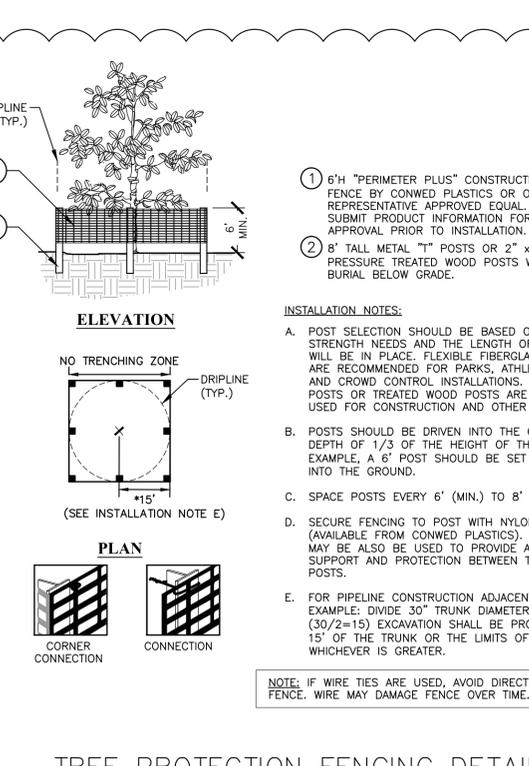
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING | UG-14 |
| REV. BY CLB/BR | DATE 11/10 | MAY 10, 2011 DATE OF APPROVAL | PAGE 114 |



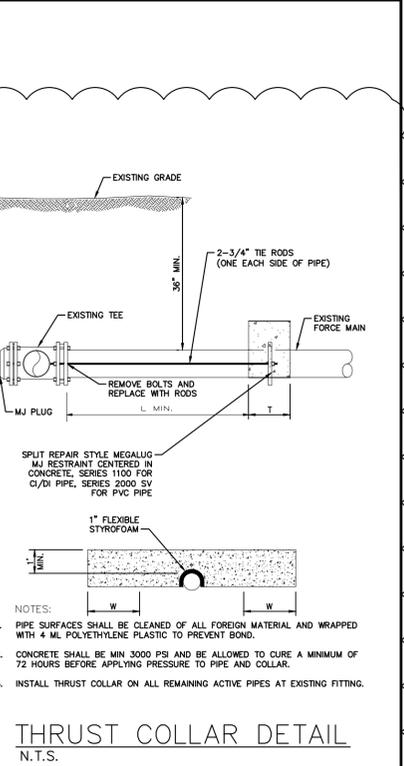
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| MANATEE COUNTY TRANSPORTATION DEPARTMENT | | COMMERCIAL & INDUSTRIAL DRIVE | 101.3 |
| REV. BY DATE | DATE 6/12/07 | DATE OF B.O.C.C. APPROVAL | |



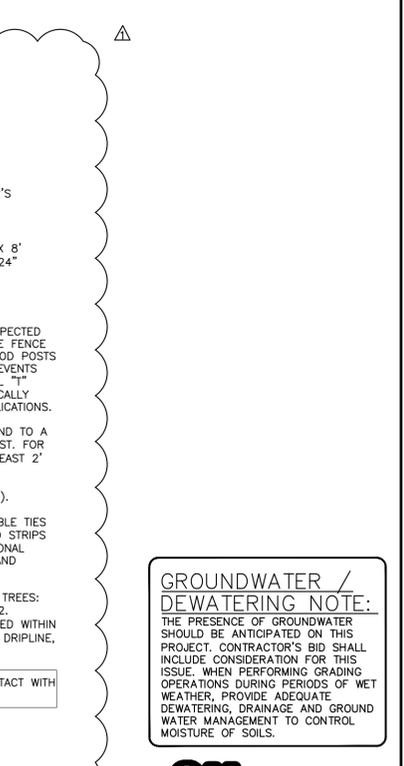
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| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | PLUG VALVE, BOX, COVER AND TAG | US-12 |
| REV. BY CLB/DOH | DATE 11/10 | MAY 10, 2011 DATE OF APPROVAL | PAGE 152 |



| | | | |
|---------------------------------------------|-----------------|----------------------------------|-------|
| MANATEE COUNTY TRANSPORTATION DEPARTMENT | | COMMERCIAL & INDUSTRIAL DRIVE | 101.3 |
| REV. BY DATE | DATE 6/12/07 | DATE OF B.O.C.C. APPROVAL | |



| | | | |
|-------------------------------------------|---------------|-----------------------------------|----------|
| MANATEE COUNTY PUBLIC WORKS DEPARTMENT | | PLUG VALVE, BOX, COVER AND TAG | US-12 |
| REV. BY CLB/DOH | DATE 11/10 | MAY 10, 2011 DATE OF APPROVAL | PAGE 152 |



| | | | |
|---------------------------------------------|-----------------|----------------------------------|-------|
| MANATEE COUNTY TRANSPORTATION DEPARTMENT | | COMMERCIAL & INDUSTRIAL DRIVE | 101.3 |
| REV. BY DATE | DATE 6/12/07 | DATE OF B.O.C.C. APPROVAL | |

GROUNDWATER / DEWATERING NOTE:
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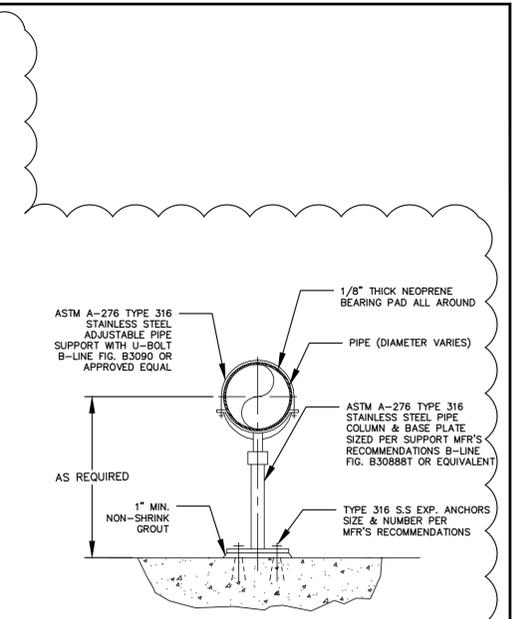
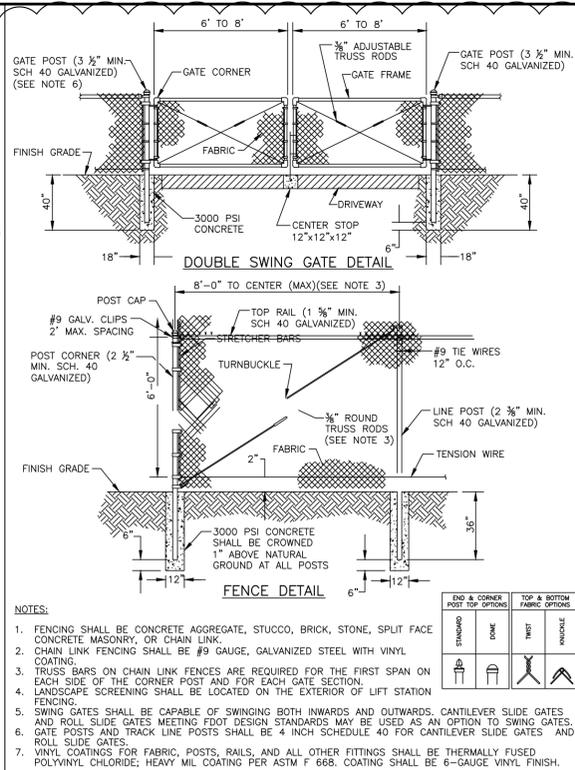
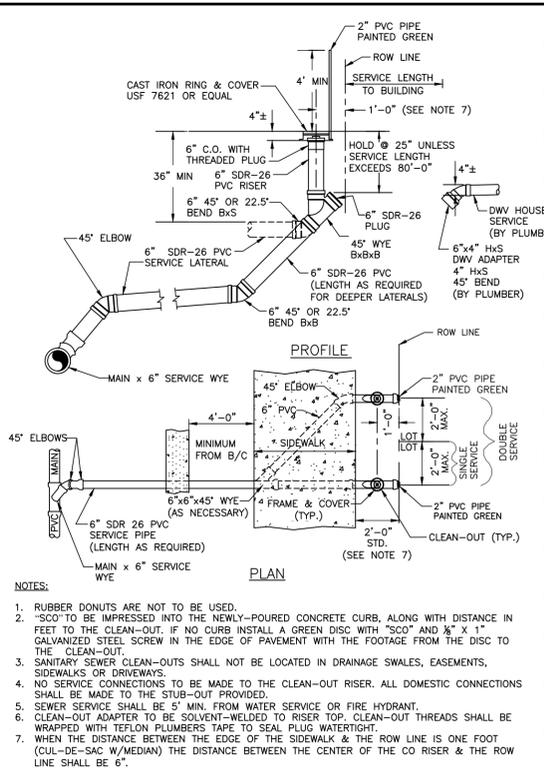
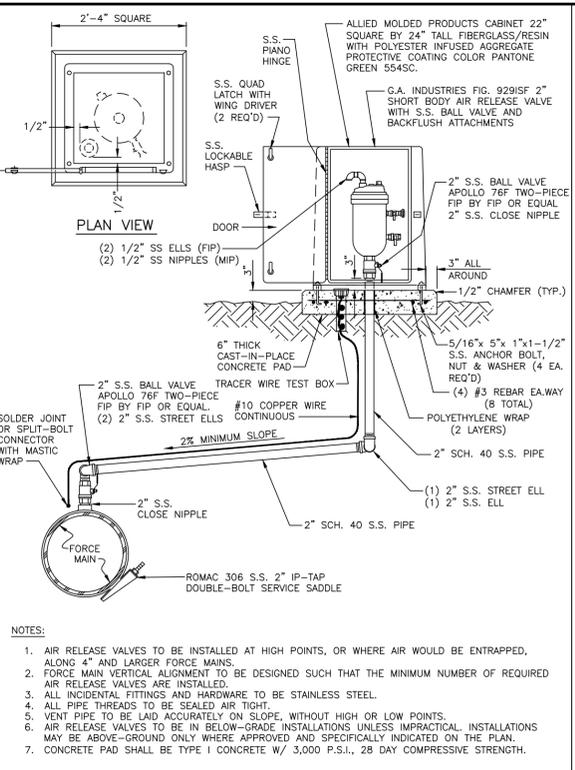
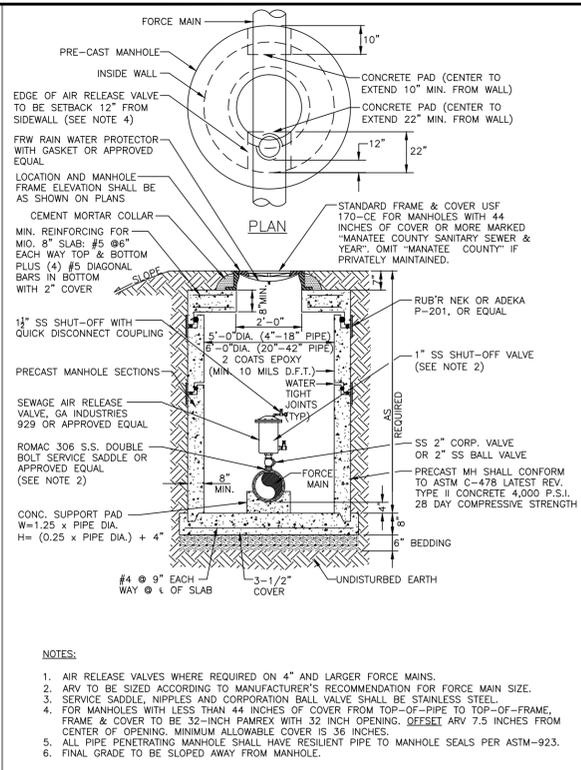
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KHA PROJECT 148400003
DATE SEPT 2016
SCALE AS SHOWN
DESIGNED BY AMM
DRAWN BY JRT
CHECKED BY WWW MANATEE COUNTY

LICENSED PROFESSIONAL
W. WADE WOOD, P.E.
FL LICENSE NUMBER 69051

FLORIDA
FORCE MAIN 1M REHABILITATION
CONSTRUCTION DETAILS
SHEET NUMBER 51

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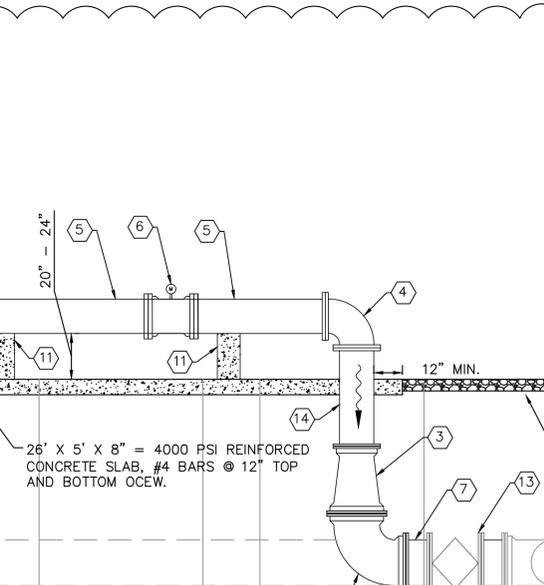
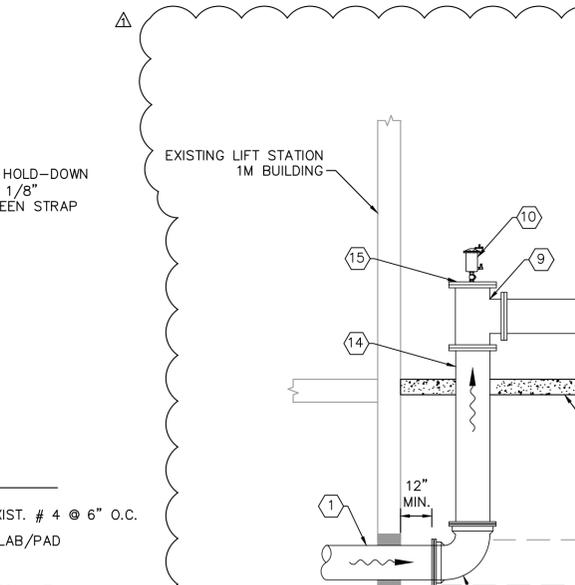
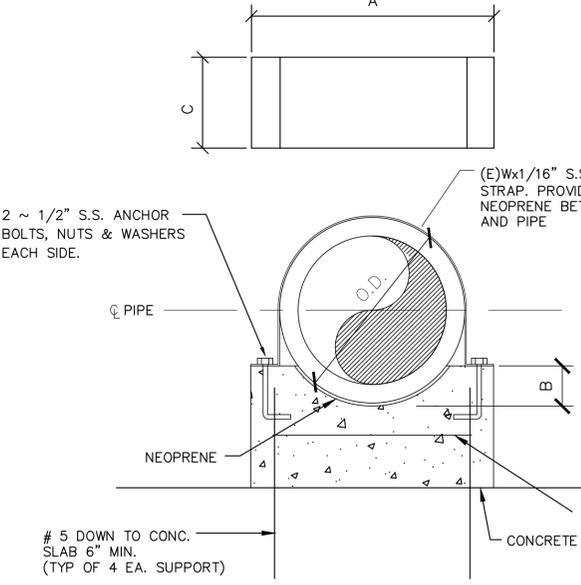


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| | MAY 10, 2011 | DATE OF APPROVAL |

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| REV. BY | DATE | DESCRIPTION |
| CLB/KE | 11/7/10 | |
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| CLB/DM | 11/7/10 | |
| | MAY 10, 2011 | DATE OF APPROVAL |

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| CLB/BR | 11/7/10 | |
| | MAY 10, 2011 | DATE OF APPROVAL |



- NOTES:**
1. ABOVE GROUND PIPING SHALL BE IRON BODY FLANGED FITTINGS.
 2. ALL PIPING SHALL BE COLOR CODED AND COATED IN ACCORDANCE W/ MANATEE COUNTY STANDARDS.
 3. PIPE THROUGH SLAB AND ABOVE GROUND SHALL BE D.I. PIPE AND FITTINGS.
 4. ALL METAL APPURTENANCES INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE STAINLESS STEEL (TYPE 316) UNLESS OTHERWISE NOTED. ALL STAINLESS STEEL BOLTS SHALL BE TREATED WITH NEVER-SIEZE PRIOR TO ASSEMBLY.
 5. CONTRACTOR TO PROVIDE REQUIRED LENGTH OF PIPE DOWNSTREAM AND UPSTREAM OF THE PROPOSED METER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 6. ALL BELOW GROUND PIPING SHALL BE RESTRAINED ACCORDINGLY.
 7. CONTRACTOR TO REMOVE/ABANDON EXISTING VAULTS AND FORCE MAIN AS NECESSARY TO PROPERLY INSTALL PROPOSED METER ASSEMBLY. ALL VOIDED AREAS SHALL BE REFILLED WITH FLOWABLE FILL.
 8. ALL BELOW GROUND D.I. PIPE AND FITTINGS SHALL BE POLYETHYLENE WRAPPED.
 9. INSTALL 6" OF COMPACTED 1" WASHED, CRUSHED SHELL OVER ONE LAYER OF WEED BARRIER OVER ALL EXPOSED GROUND SURFACES. ONE LAYER OF WEED BARRIER IS TO BE LAID AND EXTEND TO THE FENCE LINE. THE WEED BARRIER SHALL BE MIRASCAPE MANUFACTURED BY MIFAFI OR APPROVED EQUAL. ALL FINISHED GRADE SURFACES SHALL SLOPE AWAY FROM THE CONCRETE SLABS AT A MINIMUM SLOPE OF 2%, EXTENDING TO THE FENCE LINE. ALL DISTURBED GROUND SHALL BE COMPACTED TO 95% MAX DENSITY, AASHTO T-180, BEFORE INSTALLING THE WEED BARRIER.

- 1 18" D.I. SPOOL PIECE, FLG X PE
- 2 24" D.I. 90° BEND (COMPACT), MJ
- 3 24" X 18" D.I. REDUCER, MJ
- 4 18" D.I. 90° BEND (COMPACT), FLG
- 5 18" D.I. SPOOL PIECE, FLG
- 6 18" D.I. MAG METER, FLG (ABB MAG METER, MODEL FEW325)
- 7 24" D.I. SPOOL PIECE, MJ
- 8 EX. 24" D.I. TEE, MJ
- 9 18" X 18" D.I. TEE, FLG
- 10 2" ARV (REFER TO DETAIL US-10)
- 11 CONCRETE PIPE SUPPORT (REFER TO DETAIL THIS PAGE)
- 12 FENCE (REFER TO DETAIL UG-18)
- 13 24" PLUG VALVE, MJ
- 14 18" D.I. SPOOL PIECE, FLG X PE
- 15 18" D.I. BLIND FLANGE FOR ARV
- 16 18" D.I. 90° BEND (COMPACT), MJ

SCHEDULE

| PIPE SIZE | A | B | C | E |
|-----------|-------|----|-------|-----|
| 4" | 1'-2" | 2" | 8" | 2" |
| 6" | 1'-6" | 2" | 8" | 4" |
| 8" | 1'-8" | 3" | 1'-0" | 4" |
| 10" | 1'-8" | 3" | 1'-0" | 4" |
| 12" | 2'-0" | 4" | 1'-0" | 6" |
| 16" | 2'-0" | 4" | 1'-0" | 6" |
| 18" | 2'-6" | 6" | 1'-0" | 8" |
| 20" | 2'-8" | 6" | 1'-6" | 12" |
| 24" | 3'-0" | 6" | 1'-6" | 12" |
| 30" | 3'-6" | 8" | 1'-9" | 12" |
| 36" | 4'-0" | 8" | 1'-9" | 12" |

GROUNDWATER DEWATERING NOTE:

THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.

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| ADDENDUM 4 | 02/03/2017 | WWW | |
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Manatee County

FORCE MAIN 1M REHABILITATION

KHA PROJECT 148400003
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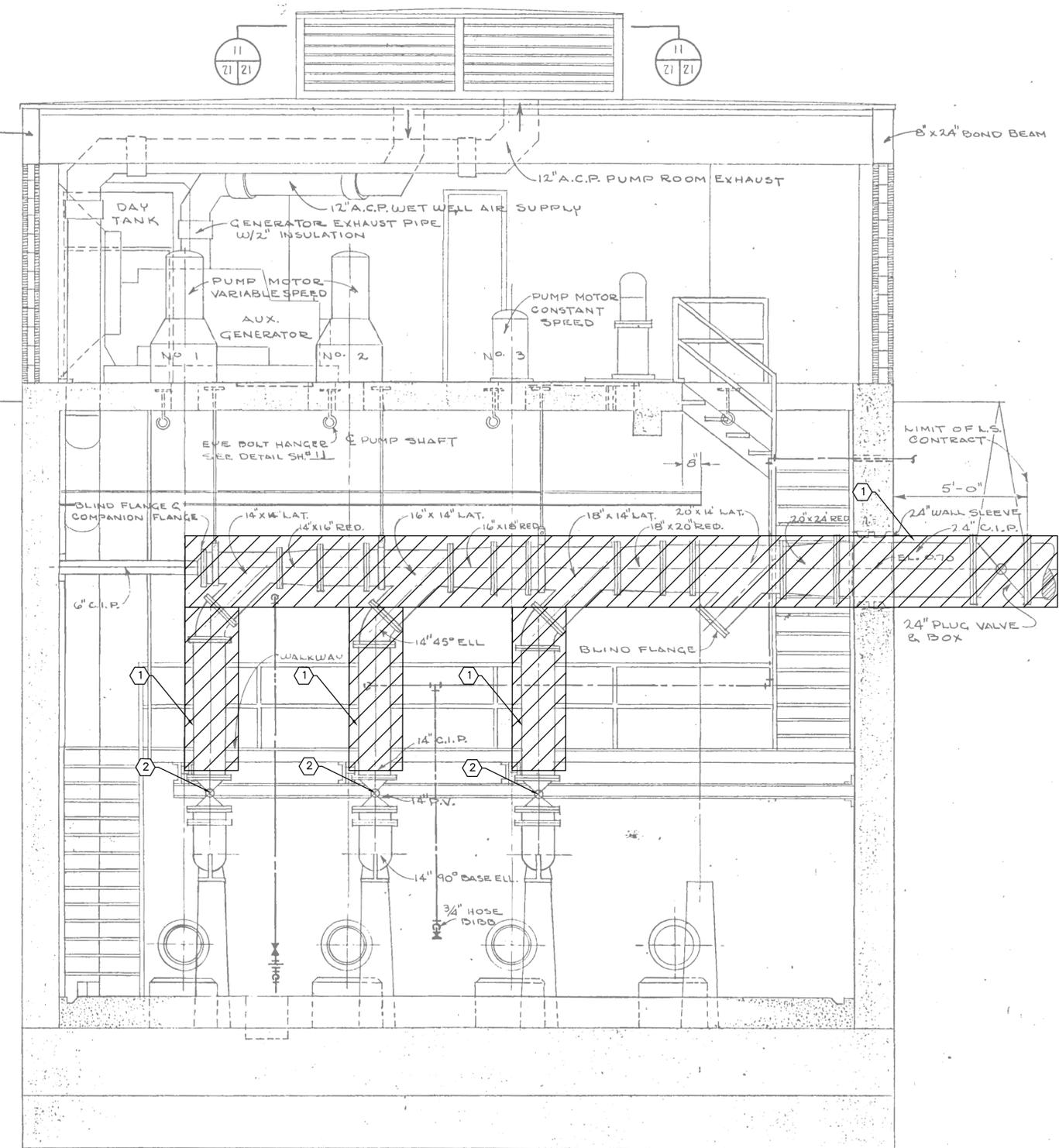
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CONSTRUCTION DETAILS

SHEET NUMBER 52

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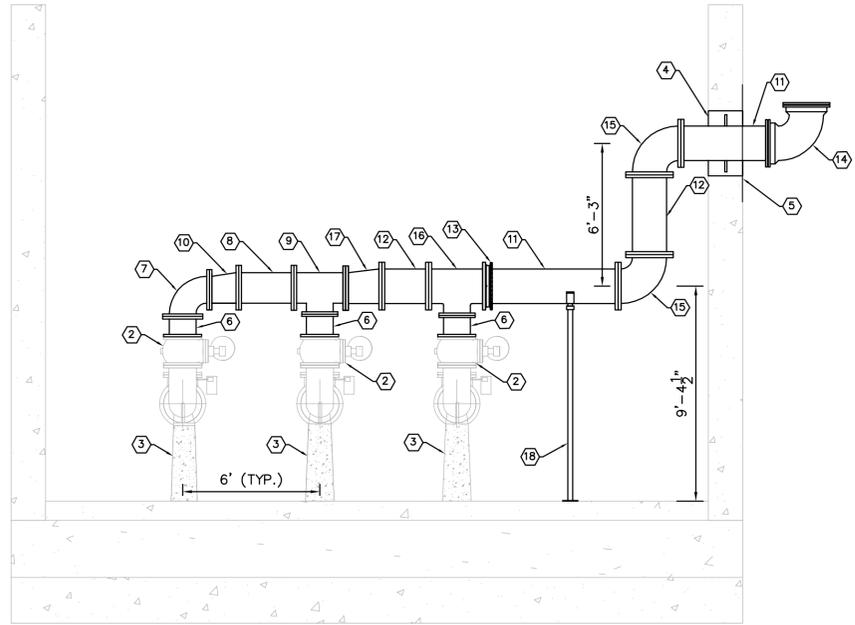
EXISTING LS 1M WET WELL SECTION
NTS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
3. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SEQUENCE SCHEDULE AS PART OF HIS SUBMITTALS FOR REVIEW AND APPROVAL FROM OWNER/ENGINEER TO MINIMIZE FLOW INTERRUPTIONS.
4. THE COUNTY RESERVES THE RIGHT FOR FIRST RIGHT OF REFUSAL. ANY TAGGED EQUIPMENT SHALL BE REMOVED AND STORED IN A SAFE PLACE PRIOR TO HANDING OVER TO THE COUNTY.
5. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

KEY NOTES

- 1 EXISTING PIPING TO BE REMOVED AND REPLACED
- 2 EXISTING 14" PLUG VALVE TO REMAIN
- 3 EXISTING CONCRETE PEDESTAL
- 4 CONTRACTOR SHALL CHIP OUT CONCRETE FROM AROUND EXISTING FM AT BUILDING IN ORDER TO REMOVE AND REINSTALL PIPING. REMOVE PIPING AND INSTALL NEW PIPING INTO THE BUILDING, SECURE TO EXISTING HEADER PIPING IN DRYWELL AND MUD UP AROUND NEW FM PIPING WITH NON-SHRINK GROUT INSIDE AND OUT.
- 5 PREPARE AND PAINT SURROUNDING CONCRETE WITH COAL TAR-EPOXY (SYSTEM NO. 46-31) PER THE SPECIFICATIONS
- 6 PROPOSED 14" D.I. SPOOL PIECE, FLG
- 7 PROPOSED 14" D.I. 90° BEND, FLG
- 8 PROPOSED 16" D.I. SPOOL PIECE, FLG
- 9 PROPOSED 16" X 14" D.I. TEE, FLG
- 10 PROPOSED 16" X 14" D.I. ECCENTRIC REDUCER, FLG
- 11 PROPOSED 18" D.I. SPOOL PIECE, FLG X PE
- 12 PROPOSED 18" D.I. SPOOL PIECE, FLG
- 13 PROPOSED 18" FLANGED COUPLING ADAPTOR
- 14 PROPOSED 18" D.I. 90° BEND, MJ
- 15 PROPOSED 18" D.I. 90° BEND, FLG
- 16 PROPOSED 18" X 14" D.I. TEE, FLG
- 17 PROPOSED 18" X 16" D.I. ECCENTRIC REDUCER, FLG
- 18 PIPE COLUMN SUPPORT PER DETAIL ON SHEET 52



PROPOSED DISCHARGE HEADER PIPING
1/4"=1'-0"

GROUNDWATER / DEWATERING NOTE:
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| ADDENDUM 4 | 02/03/2017 | WWW |
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| DESIGNED BY AMM |
| DRAWN BY JRT |
| CHECKED BY WWW |

Manatee County
FORCE MAIN 1M REHABILITATION

| |
|----------------------------|
| LICENSED PROFESSIONAL |
| W. WADE WOOD, P.E. |
| FL LICENSE NUMBER 69051 |

HEADER PIPING PLAN

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| SHEET NUMBER |
| 58 |