

STANDARD PLANS

- R-1-G DRAINAGE STRUCTURES
- R-7-F COVER B
- R-15-G COVER K
- R-28-J SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
- R-29-I DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS
- R-30-G CONCRETE CURB & GUTTER
- R-83-C UTILITY TRENCHES
- R-96-E SOIL EROSION & SEDIMENTATION CONTROL MEASURES

TRAFFIC/SAFETY STANDARD PLANS

- *WZD-100-A GROUND DRIVEN SIGN SUPPORTS FOR TEMPORARY SIGNS
- *WZD-125-E TEMPORARY TRAFFIC CONTROL DEVICES
- * INDICATES SPECIAL DETAIL INCLUDED IN PROPOSAL

UTILITIES

ELECTRIC
 JOEL BROWN
 CONSUMERS ENERGY
 700 E STERNBERG ROAD
 NORTON SHORES, MI 49441
 (251) 332-2682

TELEPHONE
 MIKE THOMPSON
 FRONTIER COMMUNICATIONS
 860 TERRACE STREET
 MUSKEGON MI 49440

NATURAL GAS
 ANTHONY FERRIER
 DTE ENERGY
 2359 OLTHOFF DRIVE
 MUSKEGON MI 49444

CABLE
 COMCAST
 TBA

WATER & SEWER
 CITY OF MUSKEGON - DPW
 1350 E KEATING AVENUE
 MUSKEGON MI 49442
 (231) 724-4100

NOTE:

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THESE IMPROVEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2011 AASHTO GUIDELINES.

GENERAL NOTES:

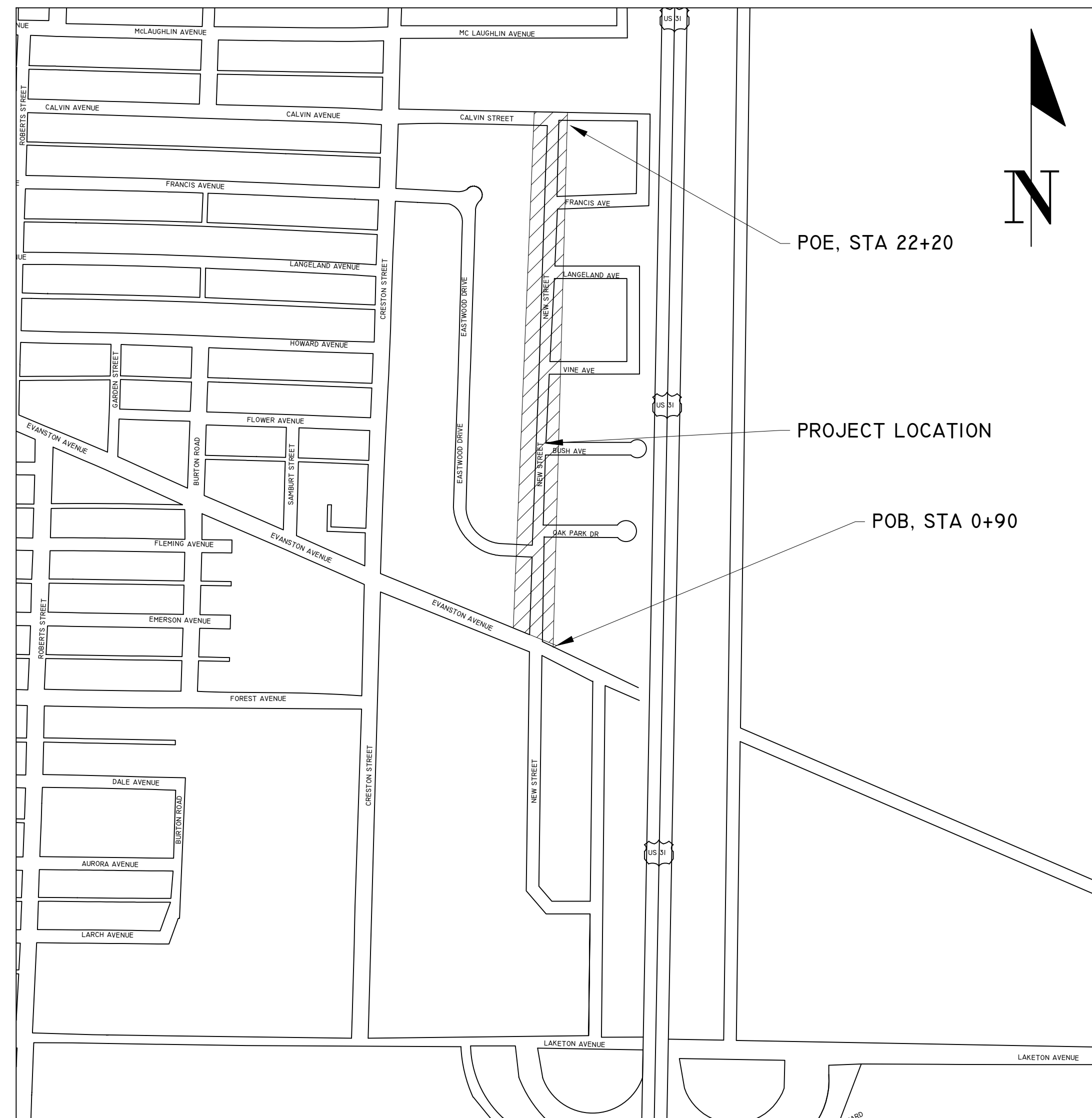
1. EXISTING CONDITIONS INCLUDING ELEVATIONS ARE SUBJECT TO CHANGE DUE TO CONSTRUCTION OUTSIDE THE CONTROL OF THE CITY OF MUSKEGON. CONTRACTOR IS TO VERIFY EXISTING CONDITIONS OF THE SITE. MATCH ALL EXISTING MEETS AND COORDINATE WORK ACTIVITIES WITH NEIGHBORING CONTRACTORS.
2. UPON REQUEST AND APPROVAL, THE CONTRACTOR MAY OBTAIN A WATER SUPPLY FROM THE CITY OF MUSKEGON FIRE HYDRANTS AT NO COST, PROVIDED THAT THEY FOLLOW THE CONDITIONS OF THE CITY WATER DEPARTMENT.
3. FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CALL MISS DIG, 1-800-482-7171, A MINIMUM OF 3 WORKING DAYS EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO EXCAVATING IN THE VICINITY OF ALL UTILITY LINES. ALL MISS DIG PARTICIPATING MEMBERS WILL THUS BE NOTIFIED, THIS DOES NOT RELIEVE THE CONTRACTOR THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE MISS DIG ALERT SYSTEM.
4. PUBLIC UTILITIES OF ALL TYPES HAVE BEEN SHOWN ON THE PLAN USING AVAILABLE INFORMATION, BUT ARE NOT GUARANTEED AS ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT.
5. THE CONTRACTOR SHALL SAW CUT ALL MEETS RELATIVE TO SIDEWALK OR PAVEMENT CONSTRUCTION UNLESS WAIVED BY THE ENGINEER. PAYMENT FOR SAW CUTTING SHALL BE INCLUDED IN THE PAYMENT FOR THE PAY ITEMS PAVT, REM, MODIFIED, CURB AND GUTTER, REM, AND/OR SIDEWALK, REM. NO ADDITIONAL PAYMENT WILL ALLOWED FOR SAW CUTTING.
6. THE CONTRACTOR SHALL PREVENT EROSION AND CONTROL SEDIMENTATION ASSOCIATED WITH THE PROJECT. KEEP SEDIMENTATION WITHIN THE RIGHT OF WAY (OR CONSTRUCTION LIMITS) AND OUT OF SURFACE WATERS. CONSTRUCT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS, TO INCLUDE INLET PROTECTION, FABRIC DROPS ON ALL INLET STRUCTURES NEW AND EXISTING AND INSTALL TEMPORARY EROSION, SEDIMENTATION CONTROLS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL REMOVE ON A DAILY BASIS SOIL TRACKED ONTO EXISTING PAVED ROADS. (VACUUM METHODS ARE PREFERRED BUT BROOM SWEEPING IS ACCEPTABLE IF THE MATERIAL IS REMOVED) THE CONTRACTOR SHALL INSPECT ALL SOIL EROSION / SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS OR AFTER EACH RAIN FALL EVENT, CLEAN REPAIR, OR REPLACE, AS NECESSARY, TO ENSURE PROPER FUNCTION. ALL SOIL EROSION / SEDIMENTATION CONTROLS SHALL REMAIN UNTIL ALL DISTURBED AREAS ARE STABILIZED. ALL SOIL EROSION / SEDIMENTATION CONTROL, EXCEPT FOR THE EROSION CONTROL, INLET PROTECTION, FABRIC DROP AND SILT FENCE SHALL BE INCLUDED WITH THE PAY ITEM PROJECT CLEAN UP. NO OTHER PAYMENT SHALL BE MADE.
7. EXISTING TRAFFIC CONTROL SIGNS THAT NEED TO BE REMOVED TO ALLOW THE CONTRACTOR TO WORK WILL BE REMOVED BY THE CONTRACTOR AND STORED IN A SAFE PLACE TO AVOID DAMAGE. THE CONTRACTOR SHALL THEN REINSTALL THE SIGNS IN THEIR ORIGINAL LOCATION OR AS DIRECTED BY THE ENGINEER. REMOVAL AND REPLACEMENT OF THE SIGNS WILL BE INCLUDED IN THE ITEM OF MINOR TRAFFIC DEVICES. SIGNS THAT ARE DAMAGED BY THE CONTRACTOR WILL BE REPLACED BY CITY FORCES, AND THE CONTRACTOR WILL PAY THE CITY FOR THE COST OF REPLACEMENT.



CITY OF MUSKEGON

PLAN AND PROFILE OF PROPOSED

NEW ST, EVANSTON TO CALVIN H 92341



SHEET INDEX

| SHEET | DESCRIPTION |
|-------|-------------------------------|
| 1. | TITLE SHEET |
| 2. | CROSS SECTION & DETAILS |
| 3. | POB 0+90 TO 4+50 PLAN SHEET |
| 4. | 4+50 TO 9+00 PLAN SHEET |
| 5. | 9+00 TO 13+50 PLAN SHEET |
| 6. | 13+50 TO 18+00 PLAN SHEET |
| 7. | 18+00 TO POE 22+20 PLAN SHEET |
| 8. | TRAFFIC CONTROL PLAN |



CONSTRUCTION INCLUDES 0.37 MILES OF HMA PAVEMENT RECONSTRUCTION; INCLUDING HMA REMOVAL, HMA PAVEMENT, WATER SERVICES, STORM SEWER, CONCRETE SIDEWALKS, AND CURB & GUTTER ON NEW ST IN THE CITY OF MUSKEGON, MUSKEGON COUNTY.

IN THE CITY OF MUSKEGON, MUSKEGON COUNTY.

PREPARED UNDER THE SUPERVISION OF:

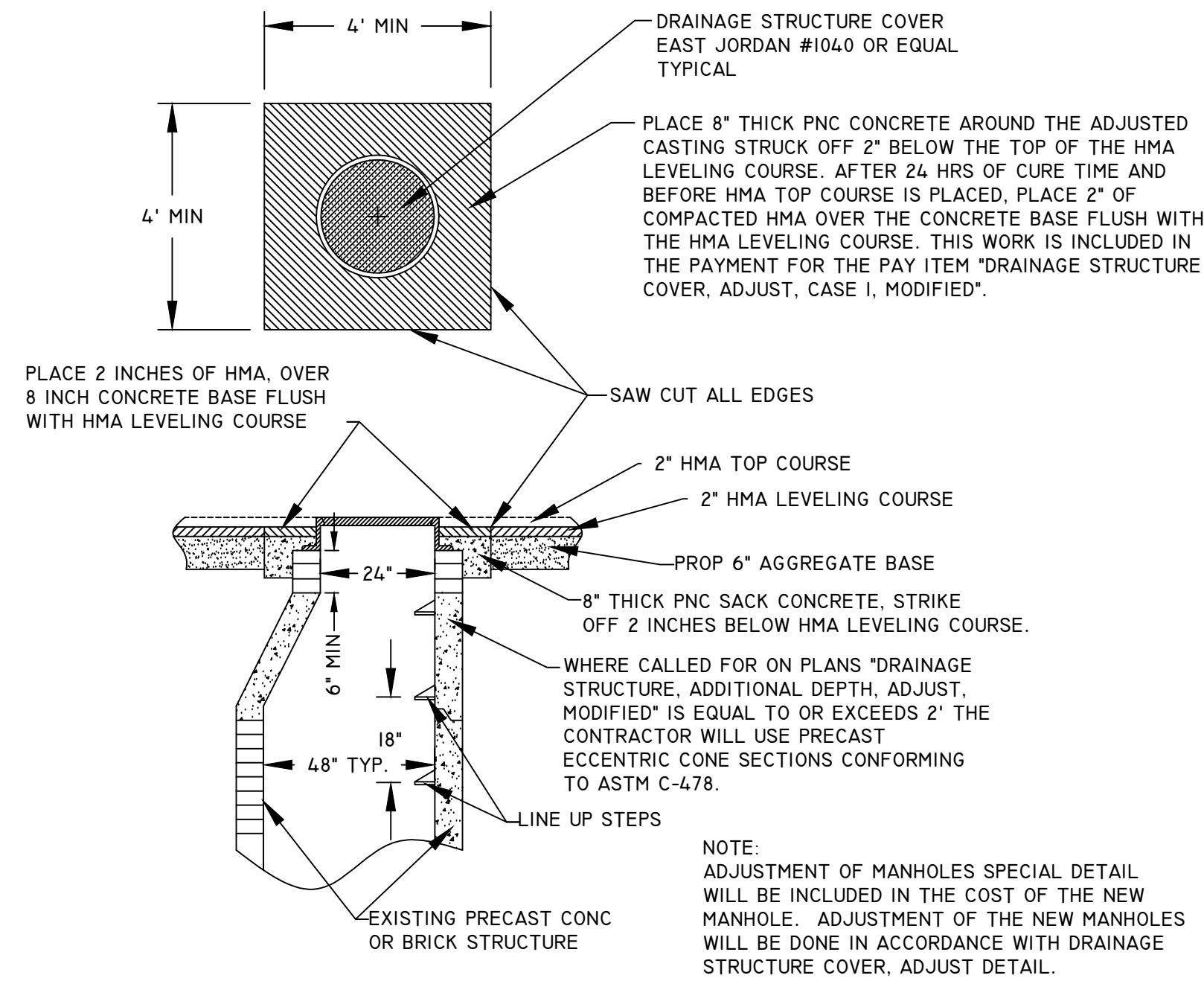
DAN VANDERHEIDE P.E.
 CITY ENGINEER
 CITY OF MUSKEGON
 ENGINEERING DEPARTMENT
 1350 E KEATING AVE
 MUSKEGON MI 49442

57004
 REGISTRATION NUMBER

| | | | |
|---|----------|----------------------------|--------------------|
| CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER | | New St, EVANSTON TO CALVIN | |
| DRAWN K PARKER 2023 | REVISION | SURVEY FP/JL 2023 | PROJECT NO H 92341 |
| CHECKED | REVISION | AS-BUILT | |
| APPROVED | REVISION | | SHEET NO. 1 OF 9 |

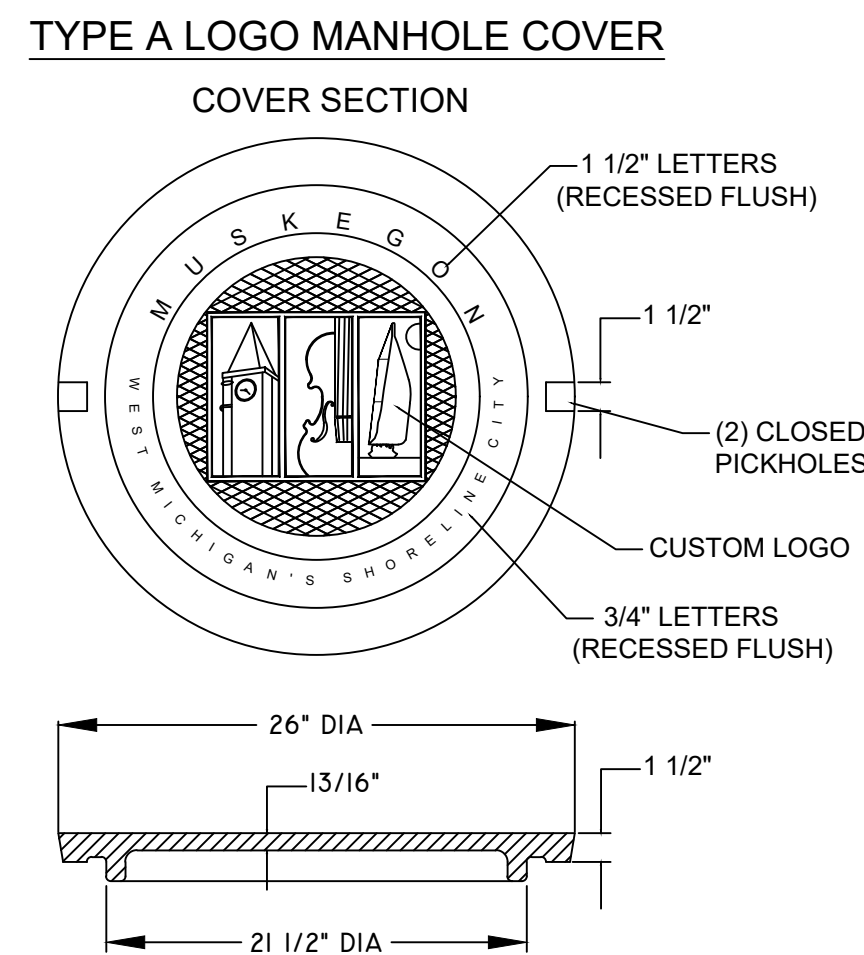
NOTES: _____
 Date: _____
 Revisions: 1. _____
 2. _____
 3. _____
 Drawn: K Parker
 Date: _____
 Checked: _____
 Date: _____
CITY OF MUSKEGON H 92341 NEW ST, EVANSTON TO CALVIN
OFFICE OF THE CITY ENGINEER
1

DETAIL FOR: DRAINAGE STRUCTURE COVER, ADJUST, CASE I, MOD.

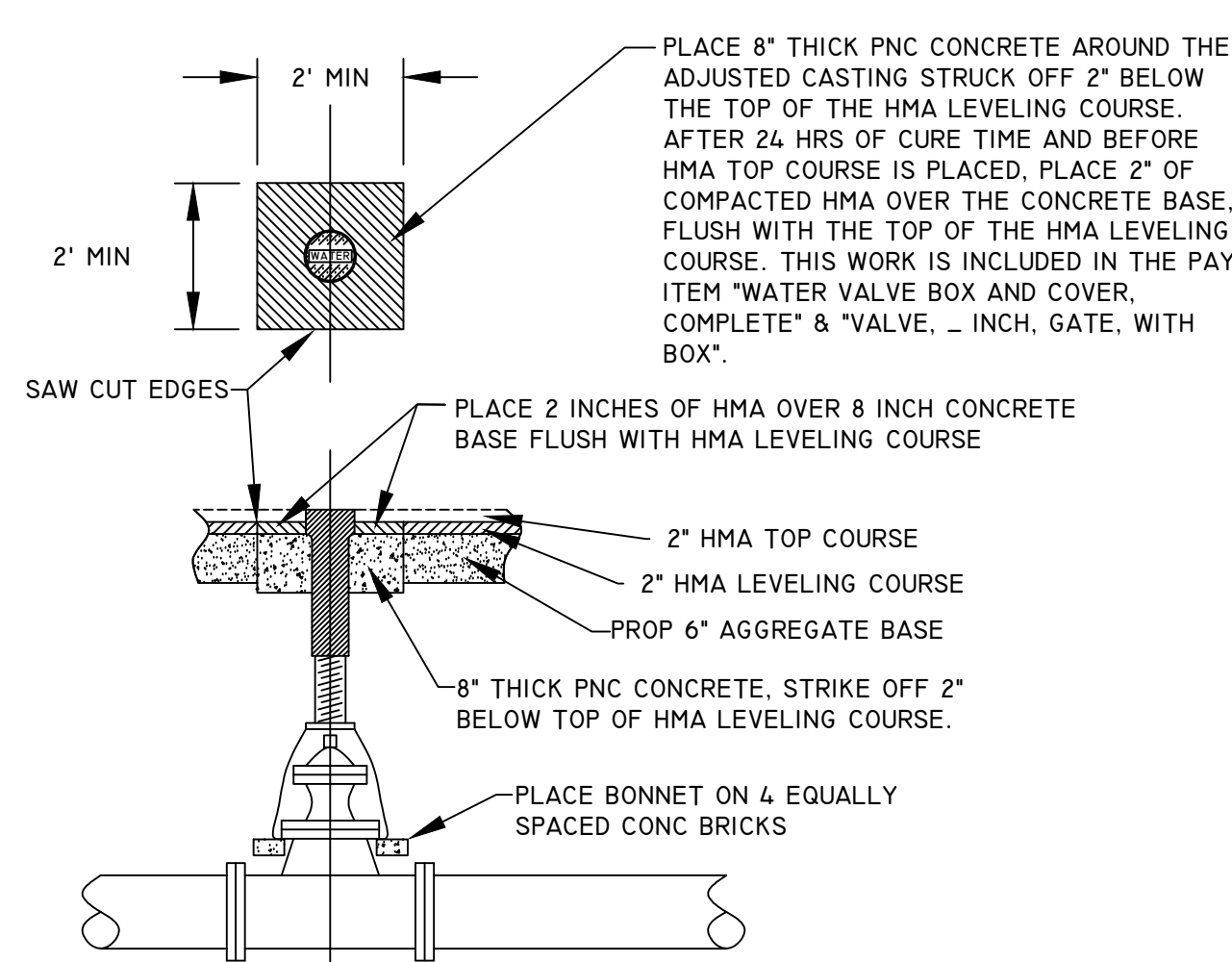


DETAIL SHEET

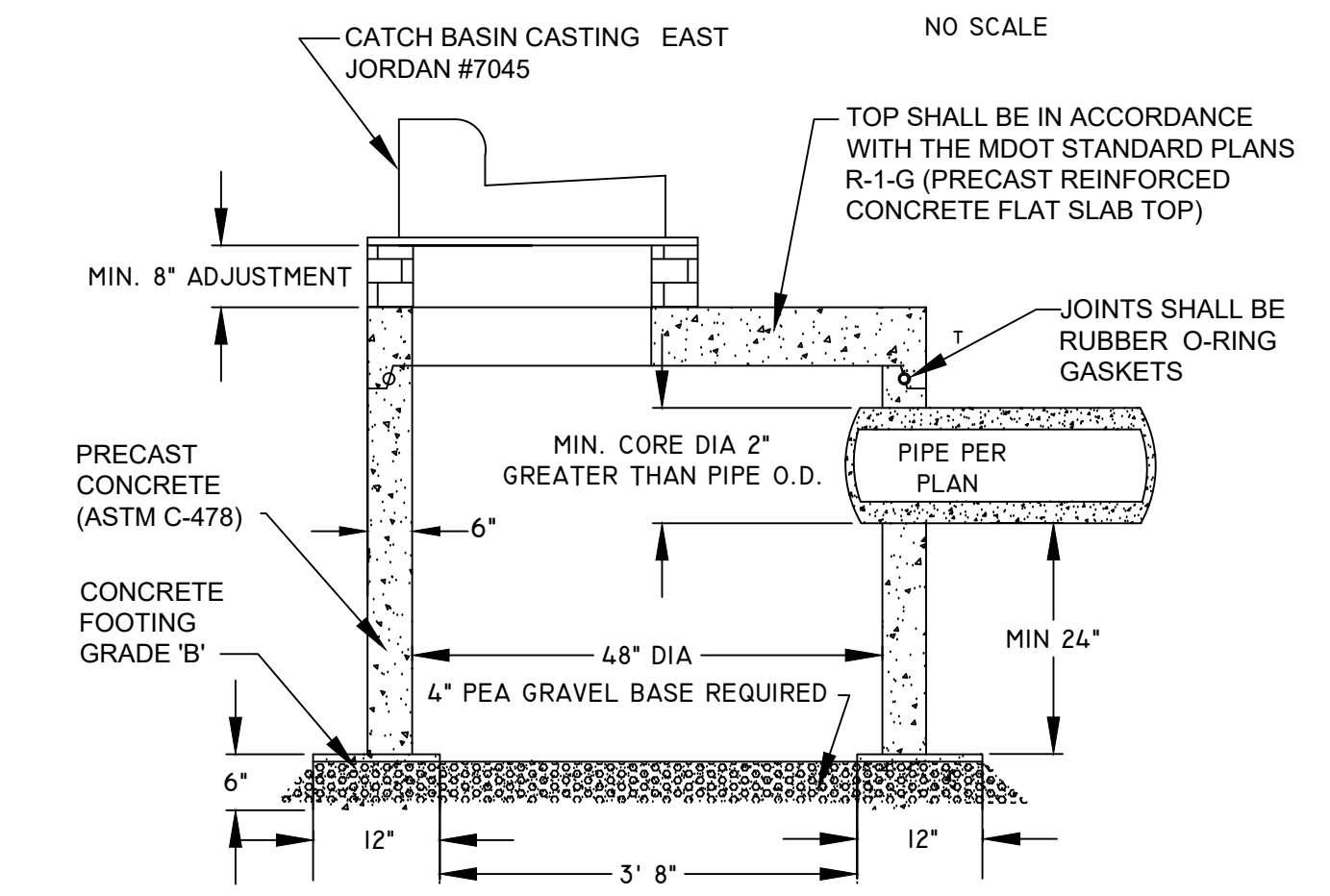
DETAIL FOR: TYPE A SOLID COVER



DETAIL FOR: WATER VALVE BOX AND COVER, COMPLETE



DETAIL FOR: CATCH BASIN 4 FT SPECIAL DETAIL



DRAINAGE STRUCTURE COVERS

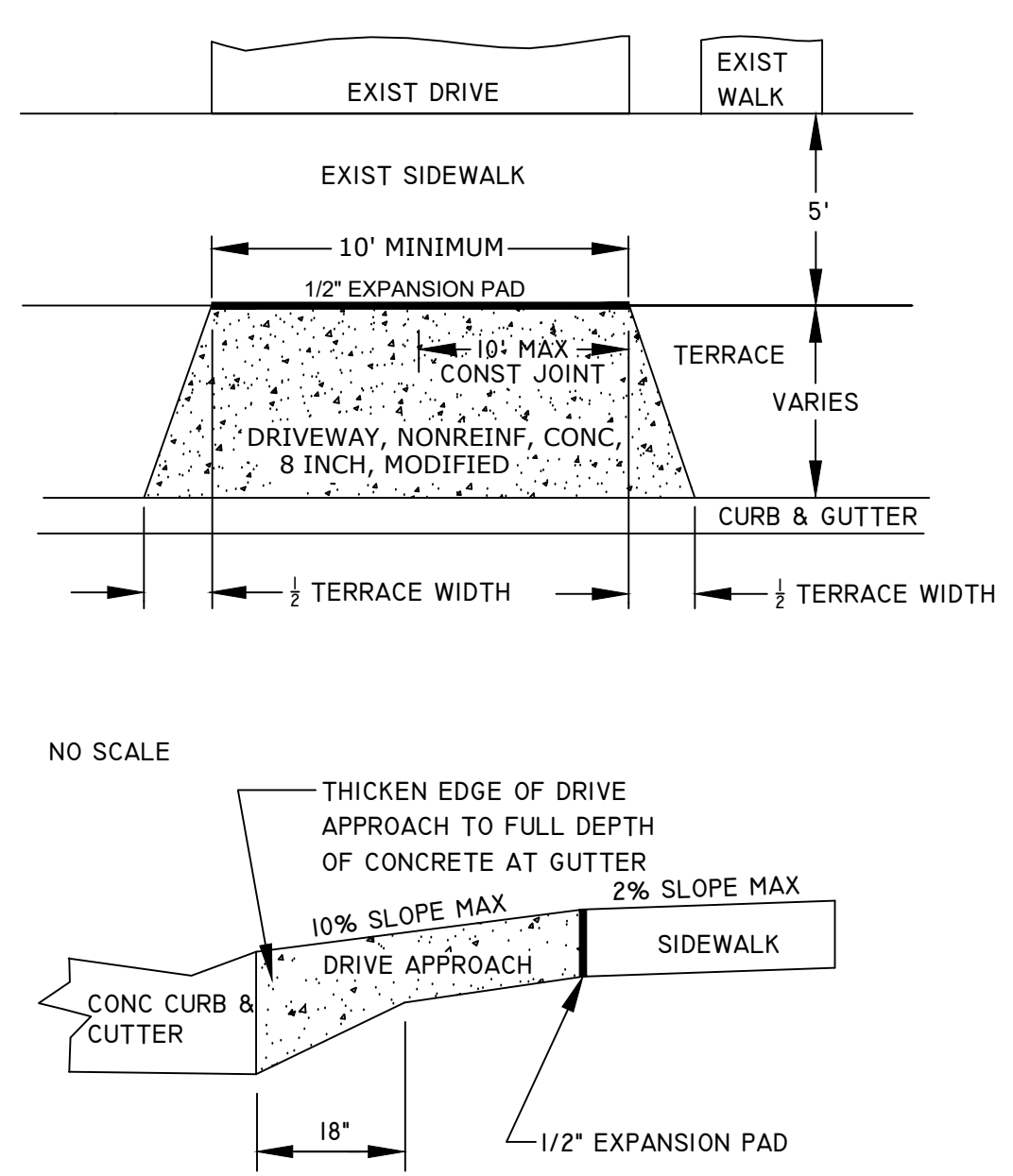
| TYPE | CASTING DESCRIPTION | QTY |
|-------------------|---|-----|
| COVER B, MODIFIED | MANHOLE CASTING EAST JORDAN #1040 OR EQUAL SEE MANHOLE CASTING DETAIL FOR TYPE A SOLID COVER | 14 |
| COVER K, MODIFIED | CATCH BASIN CASTING EAST JORDAN #7045 OR EQUAL | 20 |
| COVER D, MODIFIED | CATCH BASIN CASTING EAST JORDAN #5105 OR EQUAL | 1 |

HMA APPLICATION

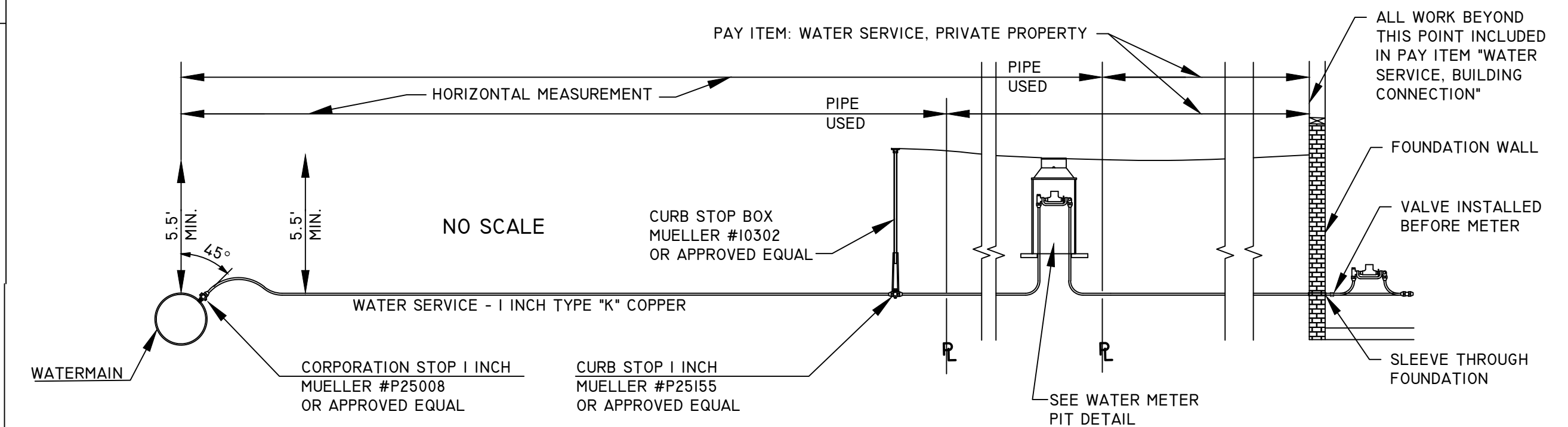
| HMA MIX | RATE | PERFORMANCE GRADE | LIFTS |
|----------------------------|------------|-------------------|----------------|
| HMA, 4E3 (TOP COURSE) | 220# / SYD | 64-28 | 2 INCH-1 LIFT |
| HMA, 4E3 (LEVELING COURSE) | 220# / SYD | 58-22 | 2 INCH-1 LIFT |
| HAND PATCHING (HMA, 4E3) | 440# / SYD | 64-28 | 4 INCH-2 LIFTS |

*HMA BOND COAT, SS-IH, AT 0.05 GAL/SY, SHALL BE PLACED BETWEEN EACH LIFT. THE COST IS INCLUDED WITH THE HMA. ___ PAY ITEM.

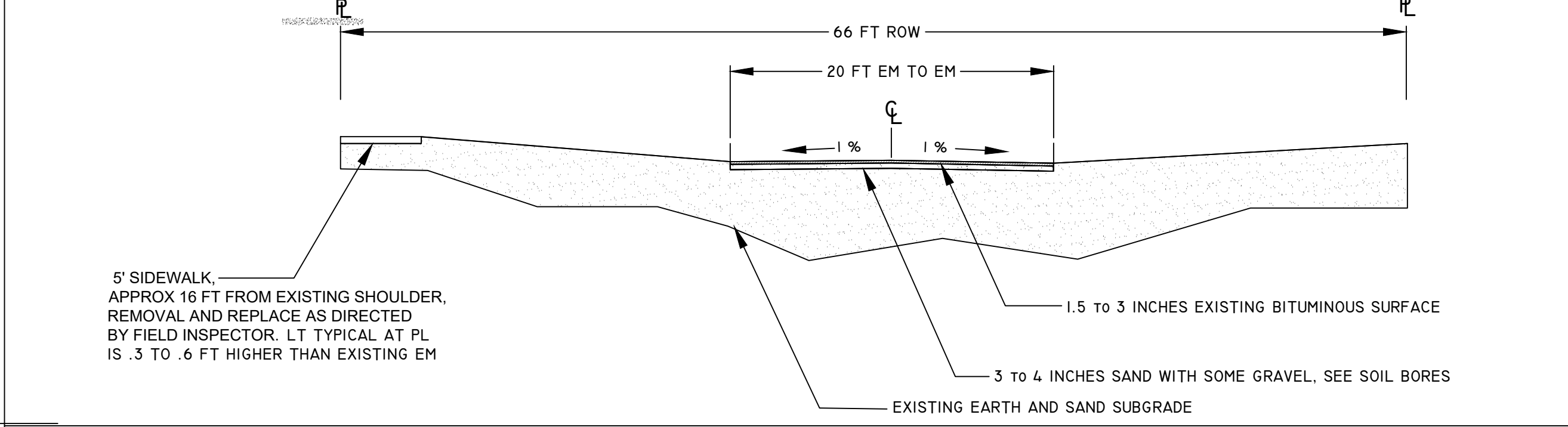
DETAIL FOR: TYPICAL DRIVE APPROACH



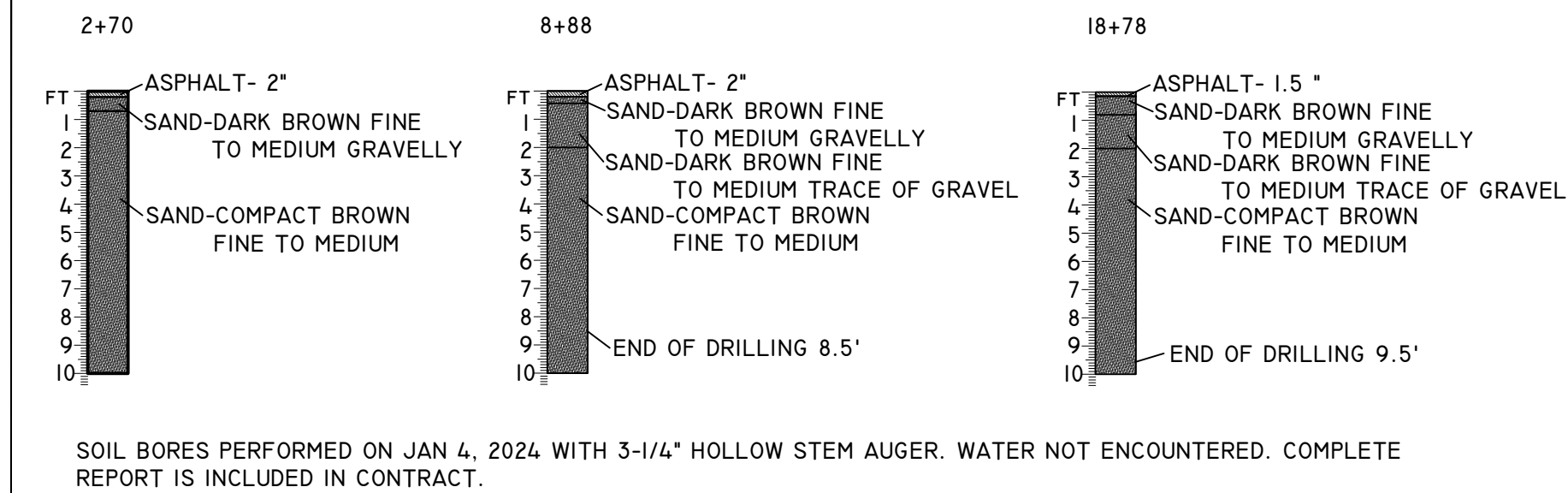
DETAIL FOR: WATER SERVICE, 1 INCH



TYPICAL EXISTING CROSS SECTION STATION 0+90 TO 22+20

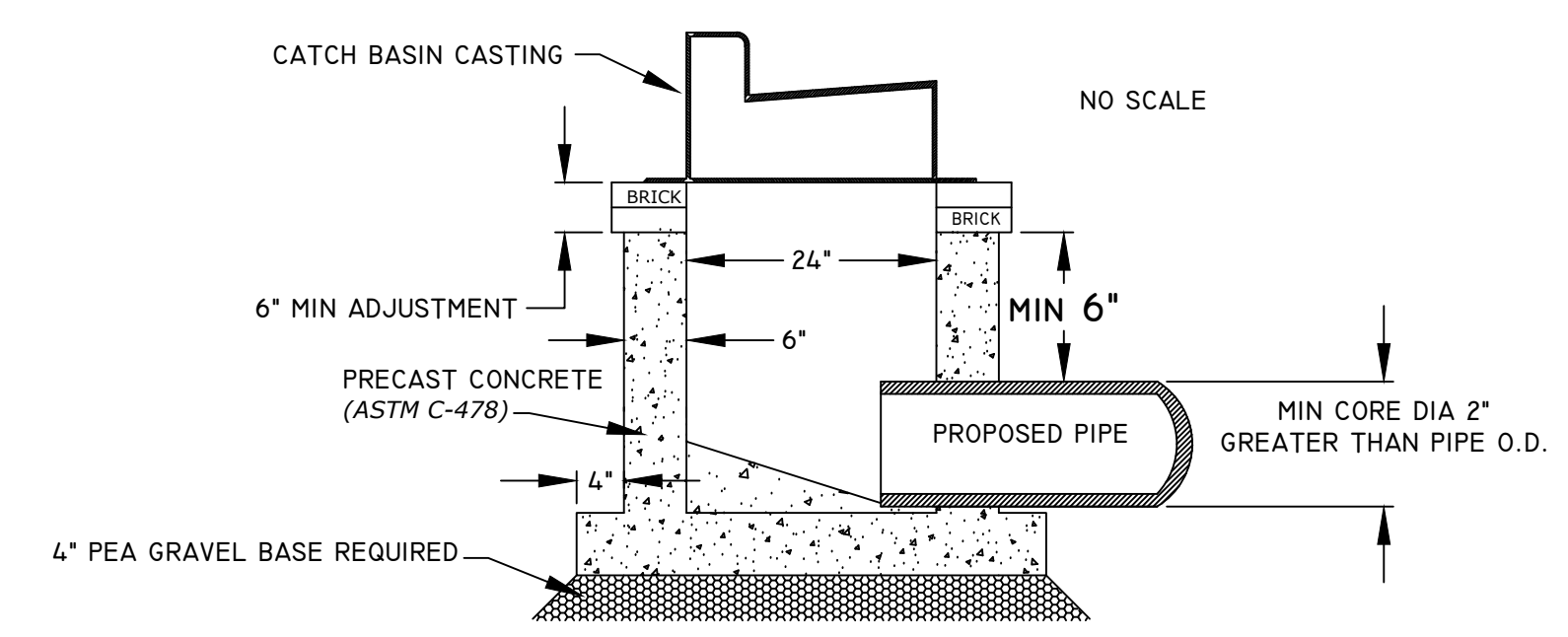


SOIL BORINGS

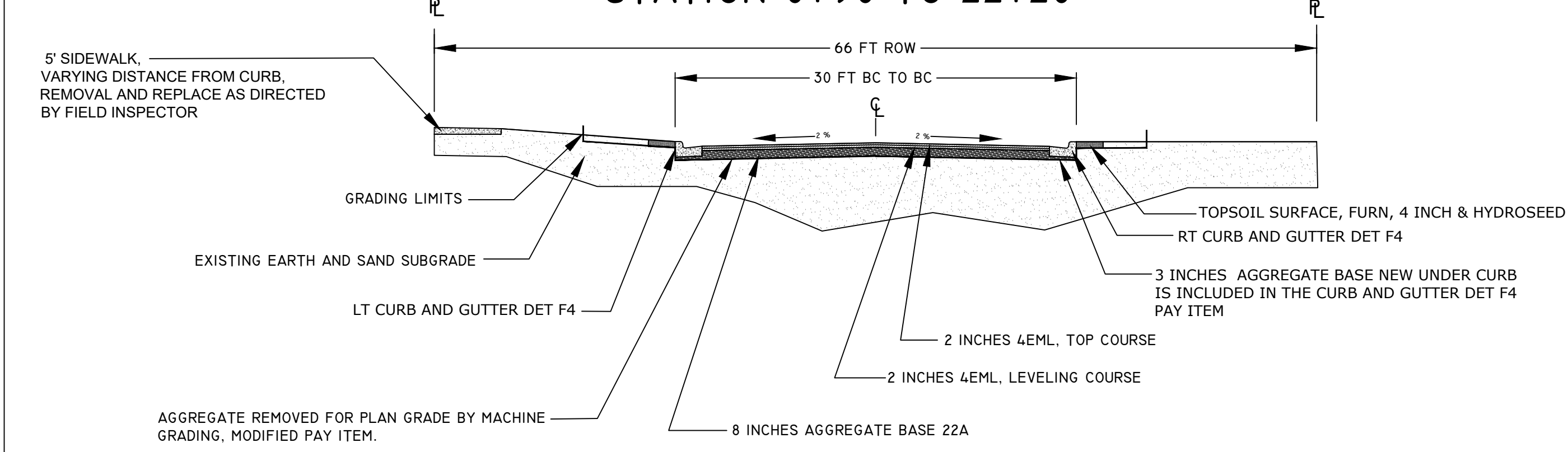


SOIL BORES PERFORMED ON JAN 4, 2024 WITH 3-1/4\"/>

DETAIL FOR: CATCH BASIN 2 FT ID SPECIAL DETAIL



PROPOSED TYPICAL CROSS SECTION STATION 0+90 TO 22+20



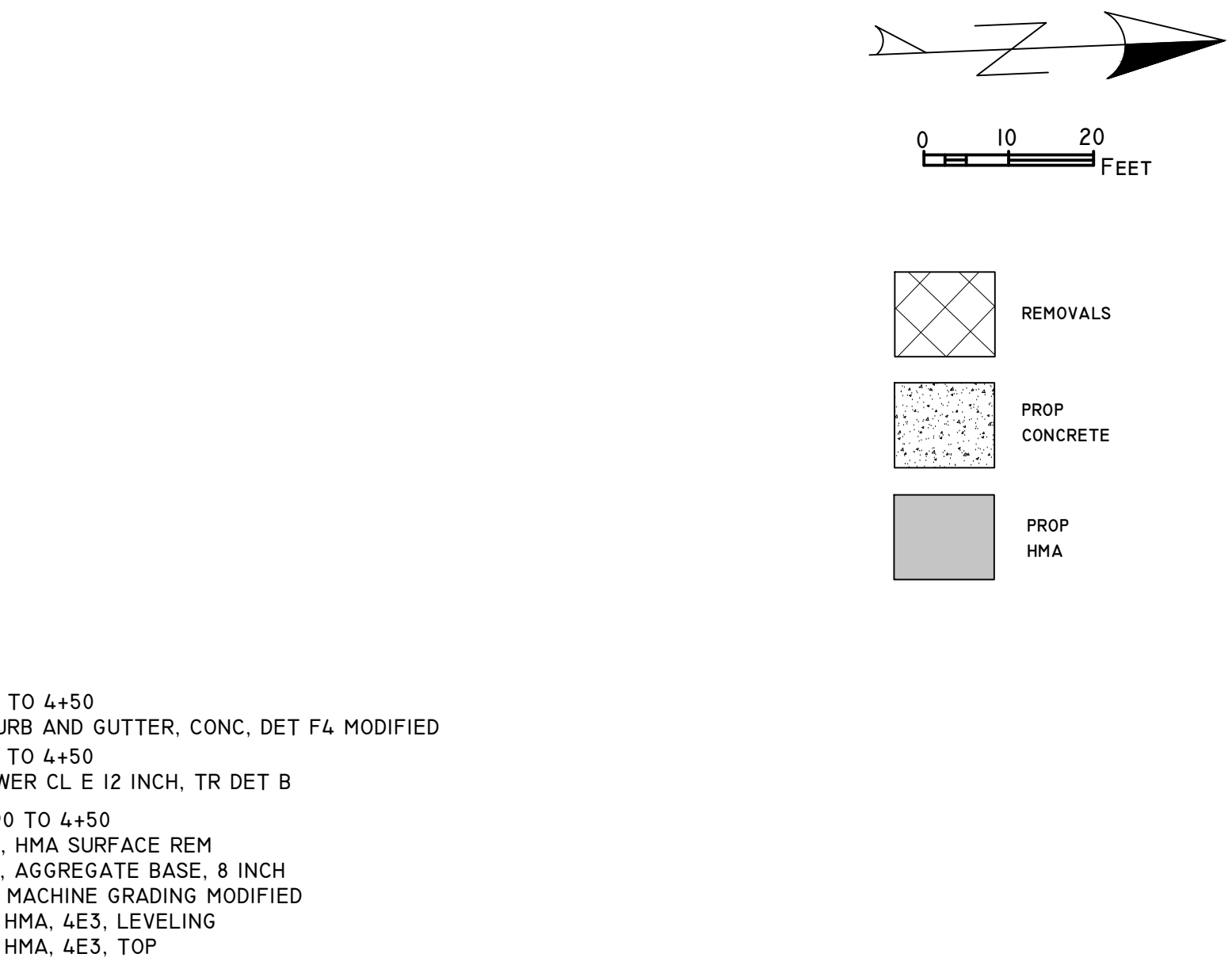
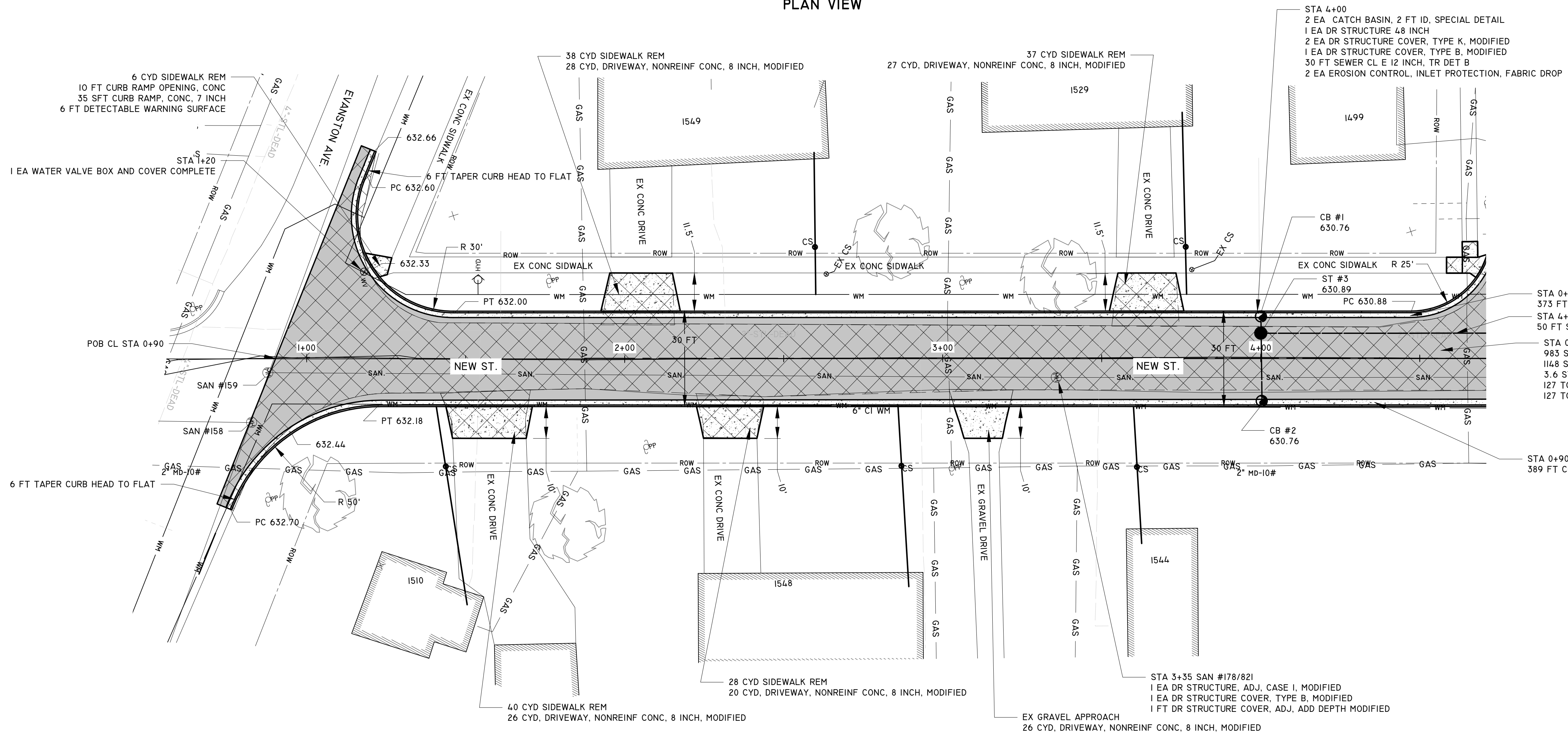
NOTE:
MACHINE GRADING, MODIFIED: STA 0+90 TO 22+20.
THERE WILL BE APPROXIMATELY 3358 LM. EXCAVATION TO BE REMOVED FROM THE JOB SITE AND BECOME PROPERTY OF THE CONTRACTOR. PAYMENT FOR REMOVING THE EXCAVATION, PLACING EMBANKMENT, COMPACTING SUBGRADE, SHAPING SUBGRADE TO PROPOSED CROSS SECTION AND REMOVING EXCESS MATERIAL WILL BE INCLUDED IN THE PAYMENT FOR MACHINE GRADING, MODIFIED PAY ITEM.

FROM STATION 0+90 TO 5+00 THERE IS APPROXIMATELY 650 CUBIC YARDS OF EXCAVATION.
FROM STATION 5+00 TO 10+00 THERE IS APPROXIMATELY 809 CUBIC YARDS OF EXCAVATION.
FROM STATION 10+00 TO 15+00 THERE IS APPROXIMATELY 834 CUBIC YARDS OF EXCAVATION.
FROM STATION 15+00 TO 22+20 THERE IS APPROXIMATELY 1065 CUBIC YARDS OF EXCAVATION.

DUE CONSTRUCTION PHASING, STOCK PILING MAY BE REQUIRED. IF STOCKING PILING IS NOT DESIRABLE, CONTRACTOR MAY REMOVE SOILS FROM THE SITE AND PROVIDE FILL AS NEEDED AT NO ADDITIONAL COST TO THE CITY. IN THIS CASE, FILL WILL BE INCLUDED IN THE PAY ITEM MACHINE GRADING, MODIFIED.

Drawn: K Parker
Date: _____
Checked: _____
Date: _____

PLAN VIEW



REMOVALS
 PROP CONCRETE
 PROP HMA

STATION 0+90 TO 4+50
 373 FT CURB AND GUTTER, CONC. DET F4 MODIFIED
 50 FT SEWER CL E 12 INCH, TR DET B
 983 SYD. HMA SURFACE REM
 1148 SYD. AGGREGATE BASE, 8 INCH
 3.6 STA MACHINE GRADING MODIFIED
 127 TON HMA, 4E3, LEVELING
 127 TON HMA, 4E3, TOP

STATION 0+90 TO 4+50
 389 FT CURB AND GUTTER, CONC. DET F4 MODIFIED

STRUCTURE INFO

| STRUCTURE NUMBER | STATION | MATERIAL | PROP. RIM ELEVATION | INVERTS | NOTES |
|------------------|---------|--------------|---------------------|--|-----------------------|
| SAN #158 | 0+82 | EX PRECAST | - | E-10'- 623.06 S-8'- 623.36 W-10'- 623.06 | |
| SAN #159 | 0+87 | EX PRECAST | - | N-8'- 623.28 E-10'- 623.18 W-8'- 623.28 | |
| SAN #178.821 | 3+35 | EX PRECAST | 631.2100 | N-10'-624.14 S-10'-624.14 | |
| CB #1 | 4+00 LT | PROP PRECAST | 630.76 | E-12'-627.34 | 2 FT SPECIAL DETAIL |
| CB #2 | 4+00 RT | PROP PRECAST | 630.76 | W-12'-627.34 | 2 FT SPECIAL DETAIL |
| ST #3 | 4+00 | PROP PRECAST | 630.89 | N-12'-625.14 E-12'-625.62 W-12'-627.28 | DR STRUCTURE, 48 INCH |

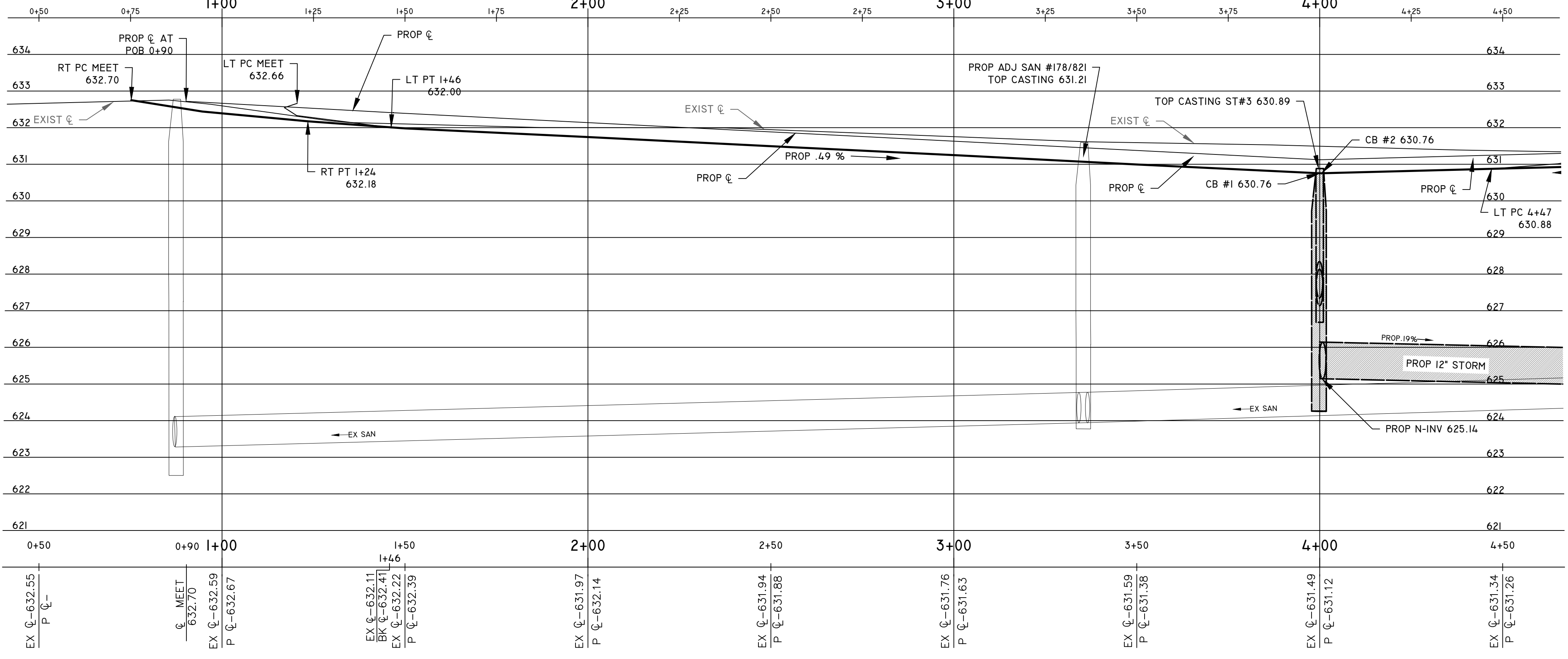
1 INCH WATER SERVICE SCHEDULE

| LOCATION | ADDRESS | 1 INCH CORP | ROW, 1 INCH COPPER (FT) | 1 INCH CURB STOP | PRIVATE, 1 INCH | BUILDING CONNECTION |
|----------|----------|-------------|-------------------------|------------------|-----------------|---------------------|
| 1+40 | 1510 NEW | 1 | 20 | 1 | 45 | 1 |
| 2+60 | 1549 NEW | 1 | 15 | 1 | 30 | 1 |
| 2+81 | 1548 NEW | 1 | 15 | 1 | 41 | 1 |
| 3+59 | 1544 NEW | 1 | 15 | 1 | 27 | 1 |
| 3+77 | 1529 NEW | 1 | 15 | 1 | 42 | 1 |
| TOTALS | | 5 EA | 80 FT | 5 EA | 185 FT | 5 EA |

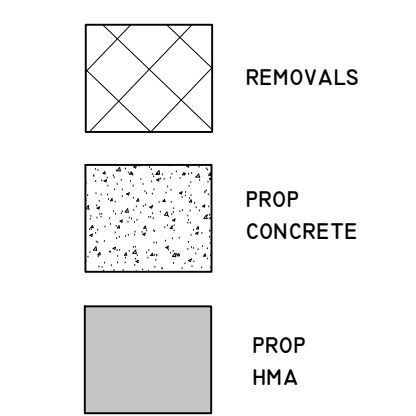
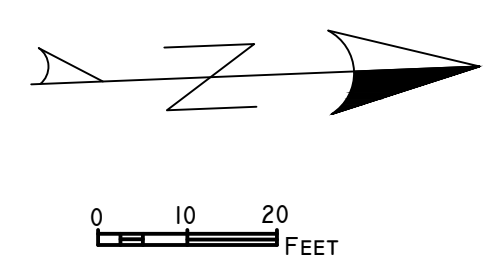
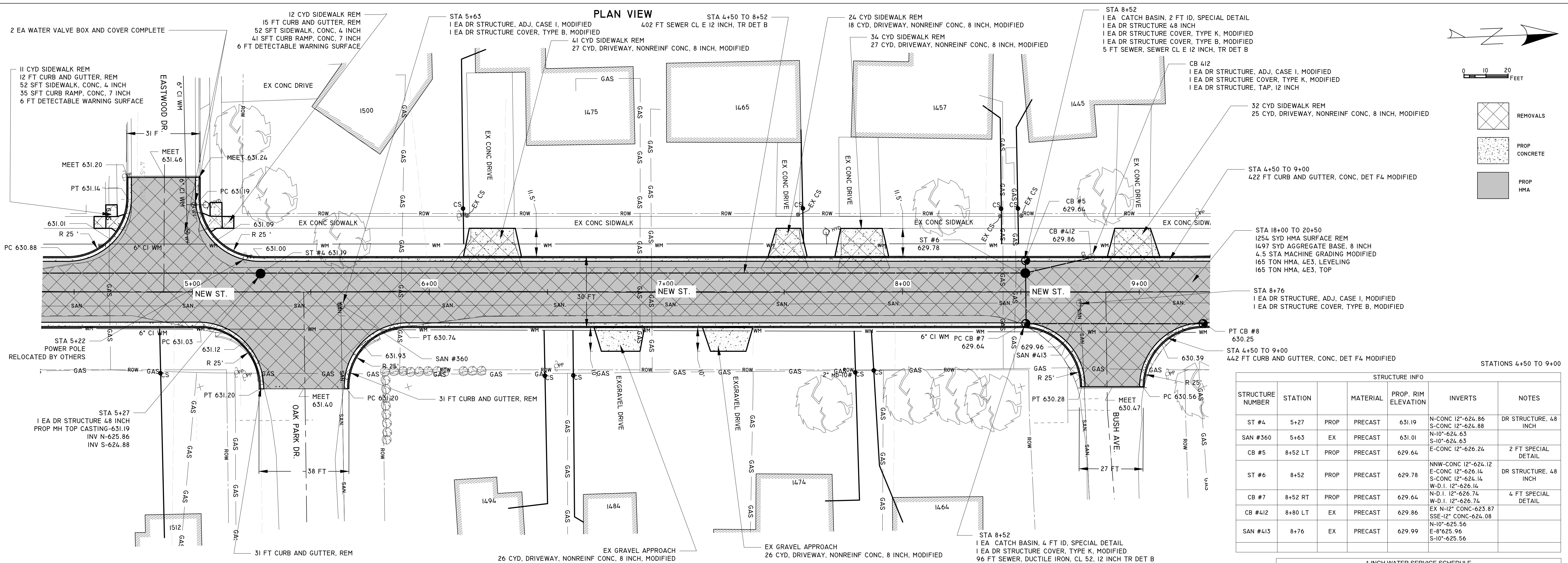
QUANTITIES THIS SHEET

| DESCRIPTION | QUANTITY | UNIT |
|--|----------|------|
| SIDEWALK, REM | 149 | SYD |
| MACHINE GRADING MODIFIED | 3.6 | STA |
| EROSION CONTROL, INLET PROTECTION, FABRIC DROP | 2 | EA |
| AGGREGATE BASE, 8 INCH | 1148 | SYD |
| SEWER CL E 12 INCH, TR DET B | 50 | FT |
| DR STRUCTURE, ADJ. CASE I, MODIFIED | 1 | EA |
| DR STRUCTURE COVER, ADJ. ADD DEPTH MODIFIED | 1 | FT |
| DR STRUCTURE COVER, TYPE B, MODIFIED | 2 | EA |
| DR STRUCTURE COVER, TYPE K, MODIFIED | 2 | EA |
| DR STRUCTURE, 48 INCH DIA | 1 | EA |
| CATCH BASIN 2FT DIA SPECIAL DETAIL | 2 | EA |
| HMA SURFACE, REM | 983 | SYD |
| HMA, 4EML, BASE AND LEVELING | 254 | TON |
| HMA, 4EML, TOP COURSE | 254 | TON |
| DRIVEWAY, NONREINF CONC, 8 INCH | 137 | SFT |
| CURB AND GUTTER, CONC, DET F4 MODIFIED | 762 | FT |
| DETECTABLE WARNING SURFACE | 6 | FT |
| SIDEWALK, CONC, 4 INCH | 0 | SFT |
| SIDEWALK, CONC, 8 INCH | 0 | SFT |
| CURB RAMP, CONC, 7 INCH | 35 | SFT |
| TOPSOIL SURFACE, FURN, 4 INCH | 272 | SYD |
| HYDROSEEDING | 272 | SYD |
| WATER SERVICE, 1 INCH, COPPER TYPE K | 80 | FT |
| WATER SERVICE, PRIVATE PROPERTY, 1 INCH | 185 | FT |
| CORPORATION STOP, 1 INCH | 5 | EA |
| CURB STOP AND BOX, 1 INCH | 5 | EA |
| WATER SERVICE BUILDING CONNECTION, 1 INCH | 5 | EA |
| WATER VALVE BOX AND COVER, COMPLETE | 1 | EA |

PROFILE VIEW



NOTES:
 Date: _____
 Revisions:
 1. _____
 2. _____
 3. _____
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 Date: _____
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 Date: _____



STATIONS 4+50 TO 9+00

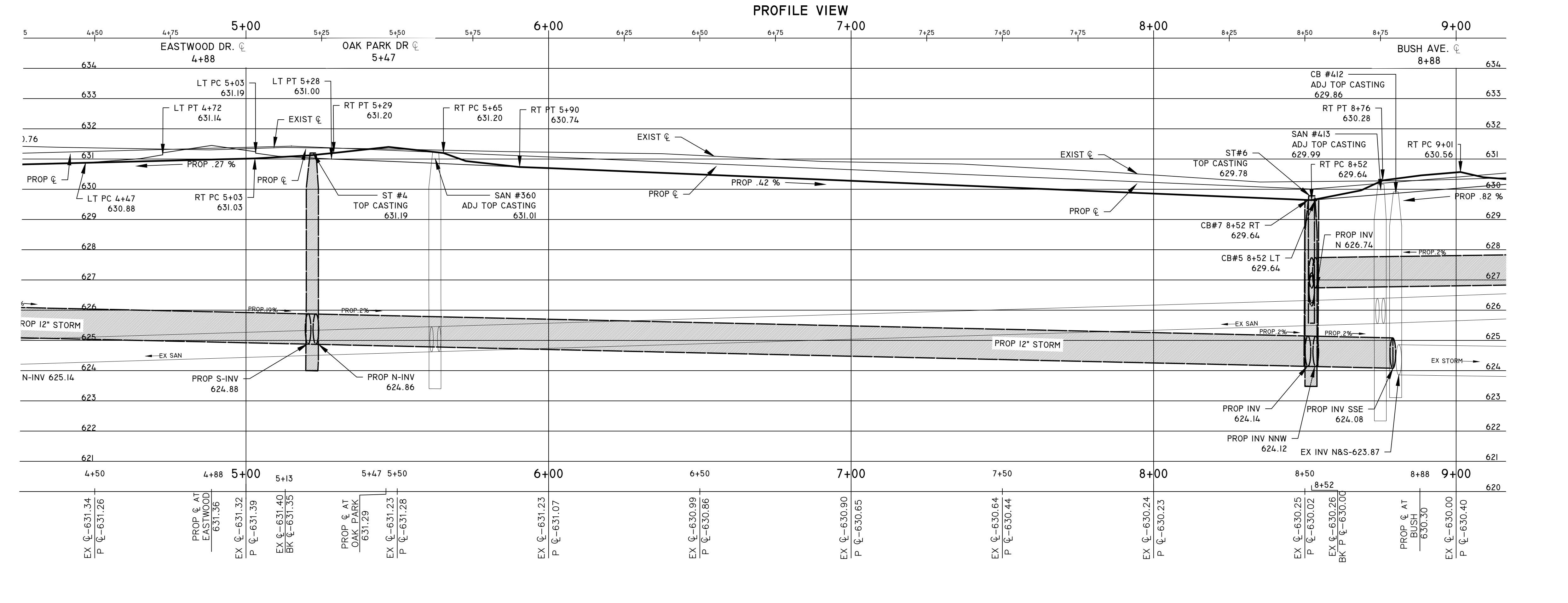
| STRUCTURE NUMBER | STATION | MATERIAL | PROP. RIM ELEVATION | INVERTS | NOTES |
|------------------|---------|--------------|---------------------|--|-----------------------|
| ST #4 | 5+27 | PROP PRECAST | 631.19 | N-CONC 12"-624.86 S-CONC 12"-624.88 | DR STRUCTURE, 48 INCH |
| SAN #360 | 5+63 | EX PRECAST | 631.01 | N-10"-624.63 S-10"-624.63 | 2 FT SPECIAL DETAIL |
| CB #5 | 8+52 LT | PROP PRECAST | 629.64 | E-CONC 12"-626.24 | DR STRUCTURE, 48 INCH |
| ST #6 | 8+52 | PROP PRECAST | 629.78 | NNW-CONC 12"-624.12 E-CONC 12"-626.14 S-CONC 12"-624.14 W-D.I. 12"-626.14 | 4 FT SPECIAL DETAIL |
| CB #7 | 8+52 RT | PROP PRECAST | 629.64 | N-D.I. 12"-626.74 W-D.I. 12"-626.74 | 4 FT SPECIAL DETAIL |
| CB #412 | 8+80 LT | EX PRECAST | 629.86 | EX N-12" CONC-623.87 SSE-12" CONC-624.08 | |
| SAN #413 | 8+76 | EX PRECAST | 629.99 | N-10"-625.56 E-8"-625.96 S-10"-625.56 | |

1 INCH WATER SERVICE SCHEDULE

| LOCATION | ADDRESS | 1 INCH CORP | ROW, 1 INCH COPPER (FT) | 1 INCH CURB STOP | PRIVATE, 1 INCH | BUILDING CONNECTION |
|----------|----------|-------------|-------------------------|------------------|-----------------|---------------------|
| 4+87 | 1512 NEW | I | 15 | I | 60 | I |
| 6+15 | 1475 NEW | I | 15 | I | 74 | I |
| 6+49 | 1494 NEW | I | 15 | I | 74 | I |
| 6+61 | 1484 NEW | I | 15 | I | 68 | I |
| 7+59 | 1465 NEW | I | 15 | I | 42 | I |
| 7+80 | 1474 NEW | I | 15 | I | 56 | I |
| 7+87 | 1464 NEW | I | 15 | I | 56 | I |
| 8+42 | 1457 NEW | I | 15 | I | 47 | I |
| 8+49 | 1445 NEW | I | 15 | I | 47 | I |
| TOTALS | | 9 EA | 135 FT | 9 EA | 524 FT | 9 EA |

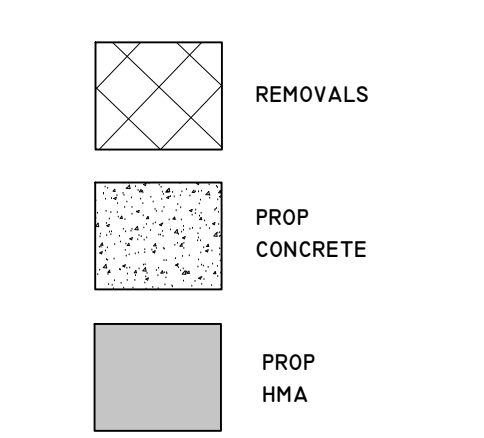
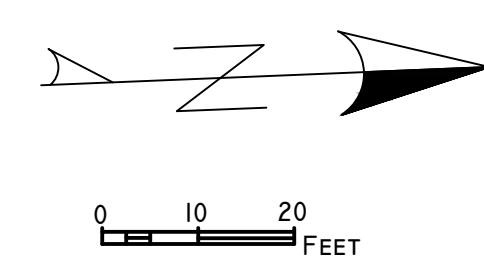
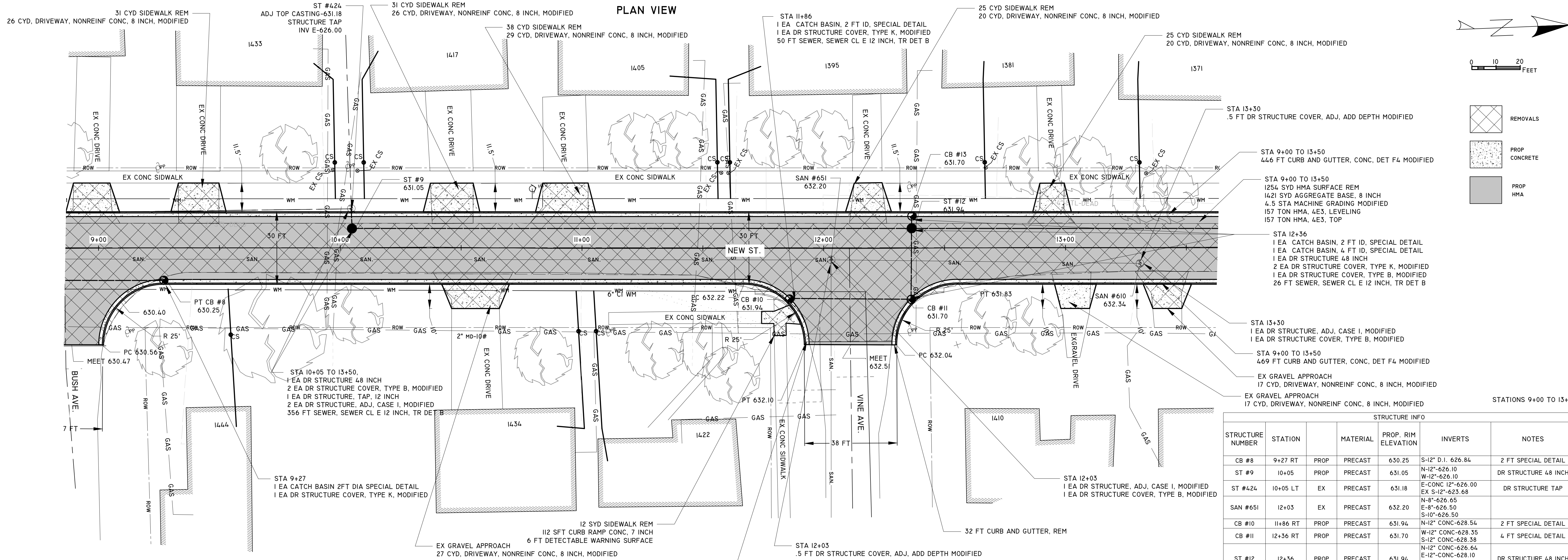
QUANTITIES THIS SHEET

| DESCRIPTION | QUANTITY | UNIT |
|--|----------|------|
| CURB AND GUTTER, REM | 89 | FT |
| SIDEWALK, REM | 154 | SYD |
| MACHINE GRADING MODIFIED | 4.5 | STA |
| EROSION CONTROL, INLET PROTECTION, FABRIC DROP | 6 | EA |
| AGGREGATE BASE, 8 INCH | 1497 | SYD |
| SEWER CL E 12 INCH, TR DET B | 407 | FT |
| SEWER, DUCTILE IRON, CL 52, 12 INCH TR DET B | 96 | FT |
| DR STRUCTURE, ADJ. CASE I, MODIFIED | 3 | EA |
| DR STRUCTURE COVER, TYPE B, MODIFIED | 4 | EA |
| DR STRUCTURE COVER, TYPE K, MODIFIED | 3 | EA |
| DR STRUCTURE, 4.8 INCH DIA | 2 | EA |
| DR STRUCTURE, 4.8 INCH DIA | 1 | EA |
| CATCH BASIN 2FT DIA SPECIAL DETAIL | 1 | EA |
| CATCH BASIN 4FT DIA SPECIAL DETAIL | 1 | EA |
| HMA SURFACE, REM | 1254 | SYD |
| HMA, 4EML, BASE AND LEVELING | 165 | TON |
| HMA, 4EML, TOP COURSE | 165 | TON |
| DRIVEWAY, NONREINF CONC, 8 INCH | 149 | SFT |
| CURB AND GUTTER, CONC, DET F4 MODIFIED | 864 | FT |
| DETECTABLE WARNING SURFACE | 12 | FT |
| SIDEWALK, CONC, 4 INCH | 104 | SFT |
| SIDEWALK, CONC, 8 INCH | 0 | SFT |
| CURB RAMP, CONC, 7 INCH | 76 | SFT |
| TOPSOIL SURFACE, FURN, 4 INCH | 288 | SYD |
| HYDROSEEDING | 288 | SYD |
| WATER SERVICE, 1 INCH, COPPER TYPE K | 135 | FT |
| WATER SERVICE, PRIVATE PROPERTY, 1 INCH | 524 | FT |
| CORPORATION STOP, 1 INCH | 9 | EA |
| CURB STOP AND BOX, 1 INCH | 9 | EA |
| WATER SERVICE BUILDING CONNECTION, 1 INCH | 9 | EA |
| WATER VALVE BOX AND COVER, COMPLETE | 2 | EA |



NOTES:
 Date: _____
 Revisions:
 1. _____
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 Checked: _____
 Date: _____

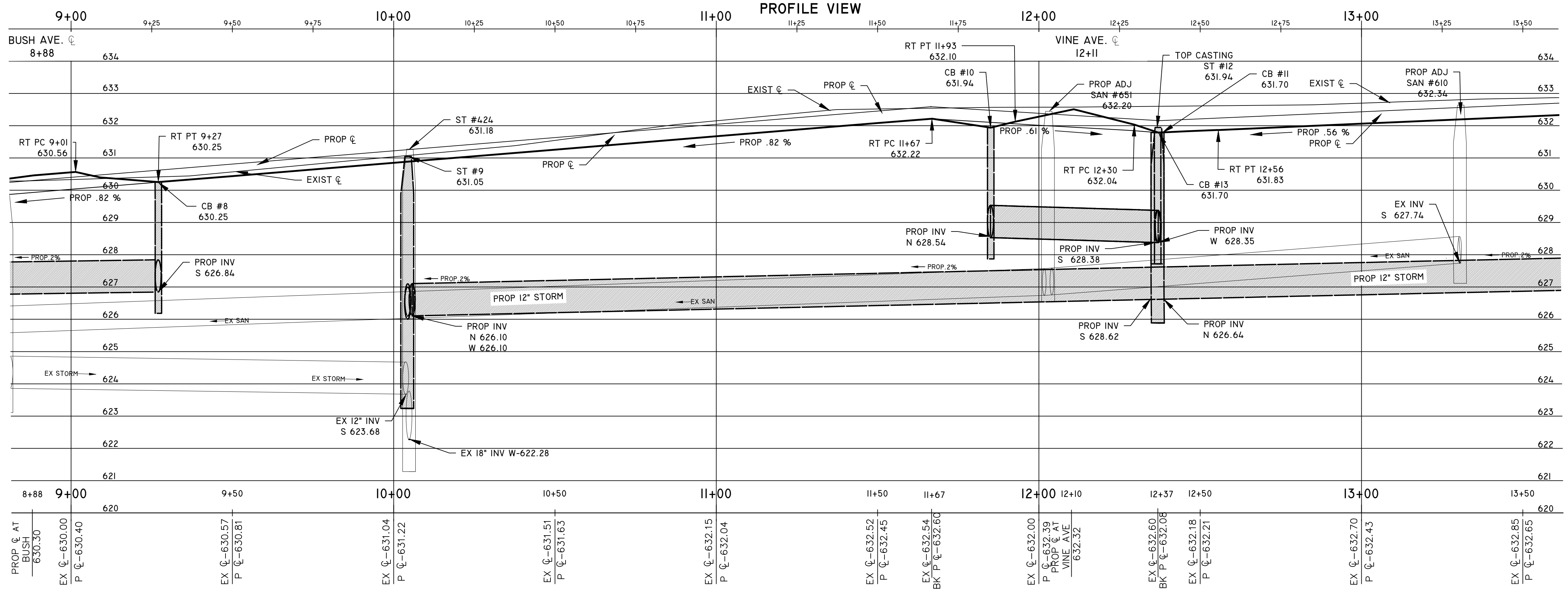
PLAN VIEW



- NOTES:**
- STA 13+30
5 FT DR STRUCTURE COVER, ADJ. ADD DEPTH MODIFIED
 - STA 9+00 TO 13+50
4.6 FT CURB AND GUTTER, CONC. DET F4 MODIFIED
 - STA 9+00 TO 13+50
1254 SYD HMA SURFACE REM
1421 SYD AGGREGATE BASE, 8 INCH
4.5 TON MACHINE GRADING MODIFIED
157 TON HMA, 4E3, LEVELING
157 TON HMA, 4E3, TOP
 - STA 12+36
1 EA CATCH BASIN, 2 FT ID, SPECIAL DETAIL
1 EA CATCH BASIN, 4 FT ID, SPECIAL DETAIL
1 EA DR STRUCTURE 48 INCH
2 EA DR STRUCTURE COVER, TYPE K, MODIFIED
1 EA DR STRUCTURE COVER, TYPE B, MODIFIED
26 FT SEWER, SEWER CL E 12 INCH, TR DET B
 - STA 13+30
1 EA DR STRUCTURE, ADJ. CASE I, MODIFIED
1 EA DR STRUCTURE COVER, TYPE B, MODIFIED
 - STA 9+00 TO 13+50
4.69 FT CURB AND GUTTER, CONC. DET F4 MODIFIED
 - EX GRAVEL APPROACH
17 CYD, DRIVEWAY, NONREINF CONC. 8 INCH, MODIFIED
 - EX GRAVEL APPROACH
17 CYD, DRIVEWAY, NONREINF CONC. 8 INCH, MODIFIED

| STRUCTURE INFO | | | | | |
|------------------|----------|--------------|---------------------|--|----------------------|
| STRUCTURE NUMBER | STATION | MATERIAL | PROP. RIM ELEVATION | INVERTS | NOTES |
| CB #8 | 9+27 RT | PROP PRECAST | 630.25 | S-12" D.I. 626.84 | 2 FT SPECIAL DETAIL |
| ST #9 | 10+05 | PROP PRECAST | 631.05 | N-12"-626.10 W-12"-626.10 | DR STRUCTURE 48 INCH |
| ST #424 | 10+05 LT | EX PRECAST | 631.18 | E-CONC 12"-626.00 EX S-12"-623.68 | DR STRUCTURE TAP |
| SAN #651 | 12+03 | EX PRECAST | 632.20 | N-8"-626.65 E-8"-626.50 S-10"-626.50 | |
| CB #10 | 11+86 RT | PROP PRECAST | 631.94 | N-12" CONC-628.54 | 2 FT SPECIAL DETAIL |
| CB #11 | 12+36 RT | PROP PRECAST | 631.70 | W-12" CONC-628.35 S-12" CONC-628.38 | 4 FT SPECIAL DETAIL |
| ST #12 | 12+36 | PROP PRECAST | 631.94 | N-12" CONC-626.64 E-12" CONC-628.10 S-12" CONC-628.62 W-12" CONC-628.28 | DR STRUCTURE 48 INCH |
| CB #13 | 12+36 LT | PROP PRECAST | 631.70 | E-12" CONC-628.38 | 2 FT SPECIAL DETAIL |
| SAN #610 | 13+30 | EX PRECAST | 632.34 | S-8"-627.74 | |

PROFILE VIEW

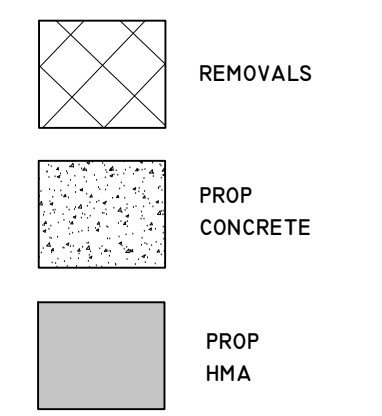
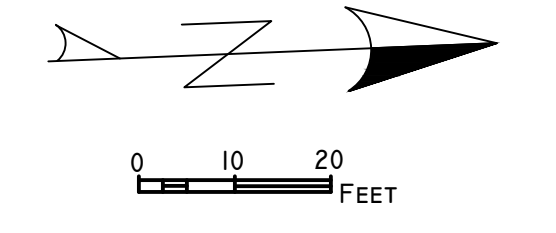
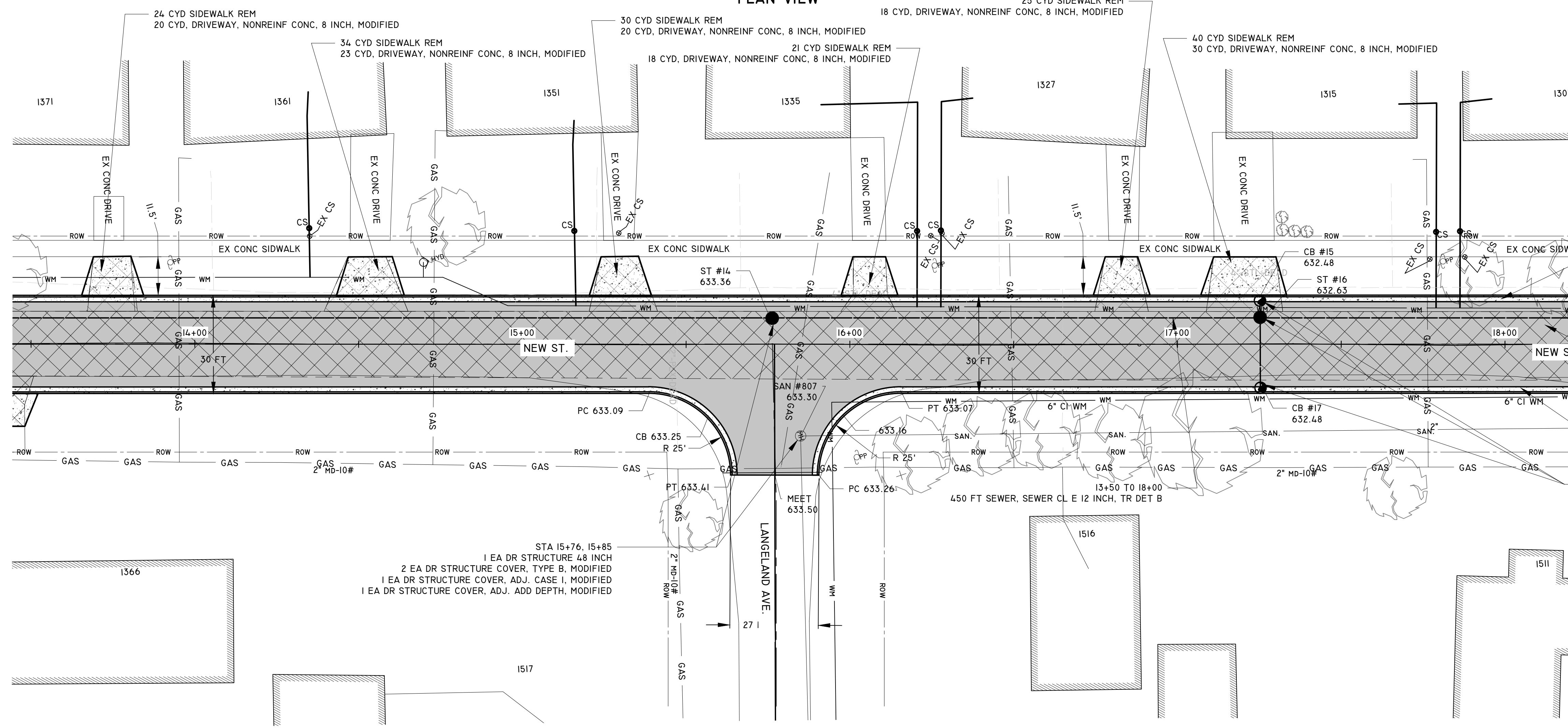


| 1 INCH WATER SERVICE SCHEDULE | | | | | | |
|-------------------------------|----------|-------------|-------------------------|------------------|-----------------|---------------------|
| LOCATION | ADDRESS | 1 INCH CORP | ROW, 1 INCH COPPER (FT) | 1 INCH CURB STOP | PRIVATE, 1 INCH | BUILDING CONNECTION |
| 9+54 | 1444 NEW | I | 15 | I | 45 | I |
| 9+98 | 1433 NEW | I | 15 | I | 44 | I |
| 10+10 | 1417 NEW | I | 15 | I | 44 | I |
| 10+98 | 1434 NEW | I | 15 | I | 41 | I |
| 11+05 | 1422 NEW | I | 15 | I | 42 | I |
| 11+56 | 1405 NEW | I | 15 | I | 53 | I |
| 11+62 | 1395 NEW | I | 15 | I | 53 | I |
| 12+67 | 1381 NEW | I | 15 | I | 41 | I |
| 13+31 | 1371 NEW | I | 15 | I | 41 | I |
| TOTALS | | 9 EA | 135 FT | 9 EA | 404 FT | 9 EA |

| QUANTITIES THIS SHEET | | |
|--|----------|------|
| DESCRIPTION | QUANTITY | UNIT |
| CURB AND GUTTER, REM | 64 | FT |
| SIDEWALK, REM | 162 | SYD |
| MACHINE GRADING MODIFIED | 4.5 | STA |
| EROSION CONTROL, INLET PROTECTION, FABRIC DROP | 3 | EA |
| AGGREGATE BASE, 8 INCH | 1421 | SYD |
| SEWER CL E 12 INCH, TR DET B | 432 | FT |
| DR STRUCTURE, ADJ. CASE I, MODIFIED | 3 | EA |
| DR STRUCTURE COVER, ADJ. ADD DEPTH MODIFIED | 1 | FT |
| DR STRUCTURE COVER, TYPE B, MODIFIED | 4 | EA |
| DR STRUCTURE COVER, TYPE K, MODIFIED | 4 | EA |
| DR STRUCTURE, 48 INCH DIA | 2 | EA |
| 1 EA DR STRUCTURE, TAP, 12 INCH | 1 | EA |
| CATCH BASIN 2FT DIA SPECIAL DETAIL | 3 | EA |
| CATCH BASIN 4FT DIA SPECIAL DETAIL | 1 | EA |
| HMA SURFACE, REM | 1254 | SYD |
| HMA, 4EML, BASE AND LEVELING | 157 | TON |
| HMA, 4EML, TOP COURSE | 157 | TON |
| DRIVEWAY, NONREINF CONC. 8 INCH | 182 | SFT |
| CURB AND GUTTER, CONC. DET F4 MODIFIED | 915 | FT |
| 6 FT DETECTABLE WARNING SURFACE | 6 | SFT |
| SIDEWALK, CONC. 4 INCH | 0 | SFT |
| CURB RAMP, CONC. 7 INCH | 112 | SFT |
| TOPSOIL SURFACE, FURN. 4 INCH | 305 | SYD |
| HYDROSEEDING | 305 | SYD |
| WATER SERVICE, 1 INCH, COPPER TYPE K | 135 | FT |
| WATER SERVICE, PRIVATE PROPERTY, 1 INCH | 404 | FT |
| CORPORATION STOP, 1 INCH | 9 | EA |
| CURB STOP AND BOX, 1 INCH | 9 | EA |
| WATER SERVICE BUILDING CONNECTION, 1 INCH | 9 | EA |

Revisions: 1. Date: _____
 2. Date: _____
 3. Date: _____
 Drawn: K Parker
 Checked: _____
 Date: _____
CITY OF MUSKEGON H 92341 NEW ST.,
 OFFICE OF THE CITY ENGINEER EVANSTON TO CALVIN
5

PLAN VIEW



- STA 13+50 TO 18+00
450 FT CURB AND GUTTER, CONC. DET F4 MODIFIED
- STA 13+50 TO 18+00
1026 SYD HMA SURFACE REM
14.04 SYD AGGREGATE BASE, 8 INCH
4.5 STA MACHINE GRADING MODIFIED
155 TON HMA, 4E3, BASE AND LEVELING
155 TON HMA, 4E3, TOP
- STA 13+50 TO 18+00
457 FT CURB AND GUTTER, CONC. DET F4 MODIFIED
- STA 17+25
2 EA CATCH BASIN, 2 FT DIA, SPECIAL DETAIL
1 EA DR STRUCTURE COVER, 48 INCH
1 EA DR STRUCTURE COVER, TYPE K, MODIFIED
1 EA DR STRUCTURE COVER, TYPE D, MODIFIED
1 EA DR STRUCTURE COVER, TYPE B, MODIFIED
30 FT SEWER, SEWER CL. E 12 INCH, TR DET B

- STA 15+76, 15+85
1 EA DR STRUCTURE 48 INCH
2 EA DR STRUCTURE COVER, TYPE B, MODIFIED
1 EA DR STRUCTURE COVER, ADJ. CASE I, MODIFIED
1 EA DR STRUCTURE COVER, ADJ. ADD DEPTH, MODIFIED

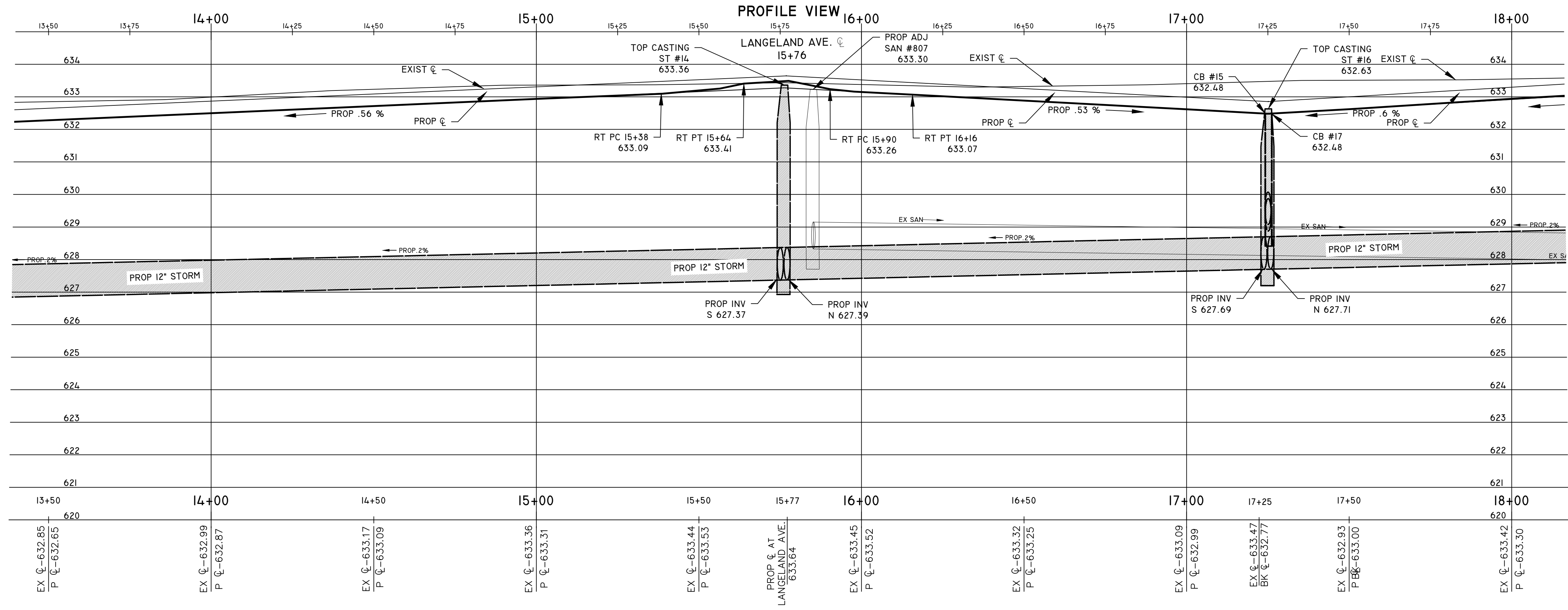
STATIONS 13+50 TO 18+00

| STRUCTURE INFO | | | | | | |
|------------------|----------|------|----------|---------------------|--|----------------------|
| STRUCTURE NUMBER | STATION | | MATERIAL | PROP. RIM ELEVATION | INVERTS | NOTES |
| ST #14 | 15+76 | PROP | PRECAST | 633.36 | N-12"-CONC-627.39 S-12"-CONC-627.37 | DR STRUCTURE 48 INCH |
| SAN #807 | 15+85 | EX | PRECAST | 633.30 | N-8"-628.33 E-8"-628.33 E-12"-629.08 | 2 FT SPECIAL DETAIL |
| CB #15 | 17+25 LT | PROP | PRECAST | 632.48 | N-12"-CONC-627.71 E-12"-CONC-628.87 S-12"-CONC-627.69 W-12"-CONC-628.90 | 2 FT SPECIAL DETAIL |
| ST #16 | 17+25 | PROP | PRECAST | 632.63 | N-12"-CONC-627.71 E-12"-CONC-628.87 S-12"-CONC-627.69 W-12"-CONC-628.90 | DR STRUCTURE TAP |
| CB #17 | 17+25 RT | PROP | PRECAST | 632.48 | W-12"-CONC-629.08 | 2 FT SPECIAL DETAIL |

| 1 INCH WATER SERVICE SCHEDULE | | | | | | |
|-------------------------------|----------|-------------|-------------------------|------------------|-----------------|---------------------|
| LOCATION | ADDRESS | I INCH CORP | ROW, I INCH COPPER (FT) | I INCH CURB STOP | PRIVATE, I INCH | BUILDING CONNECTION |
| 14+35 | 1361 NEW | I | 15 | I | 41 | I |
| 15+16 | 1351 NEW | I | 15 | I | 41 | I |
| 16+20 | 1335 NEW | I | 15 | I | 76 | I |
| 16+28 | 1327 NEW | I | 15 | I | 60 | I |
| 17+78 | 1315 NEW | I | 15 | I | 58 | I |
| 17+88 | 1301 NEW | I | 15 | I | 58 | I |
| TOTALS | | 6 EA | 90 FT | 6 EA | 334 FT | 6 EA |

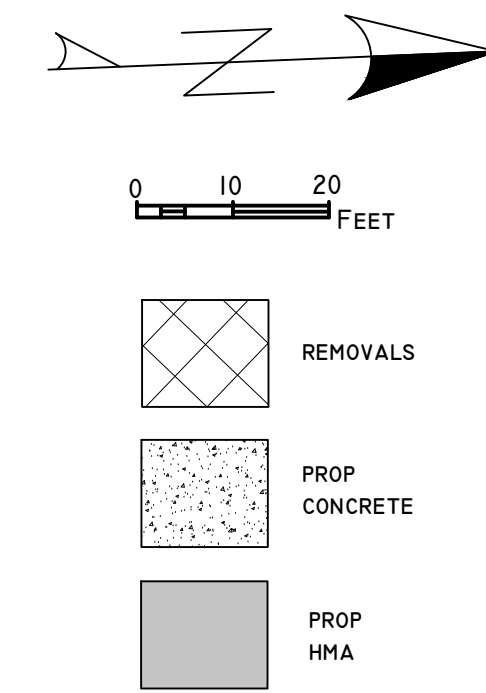
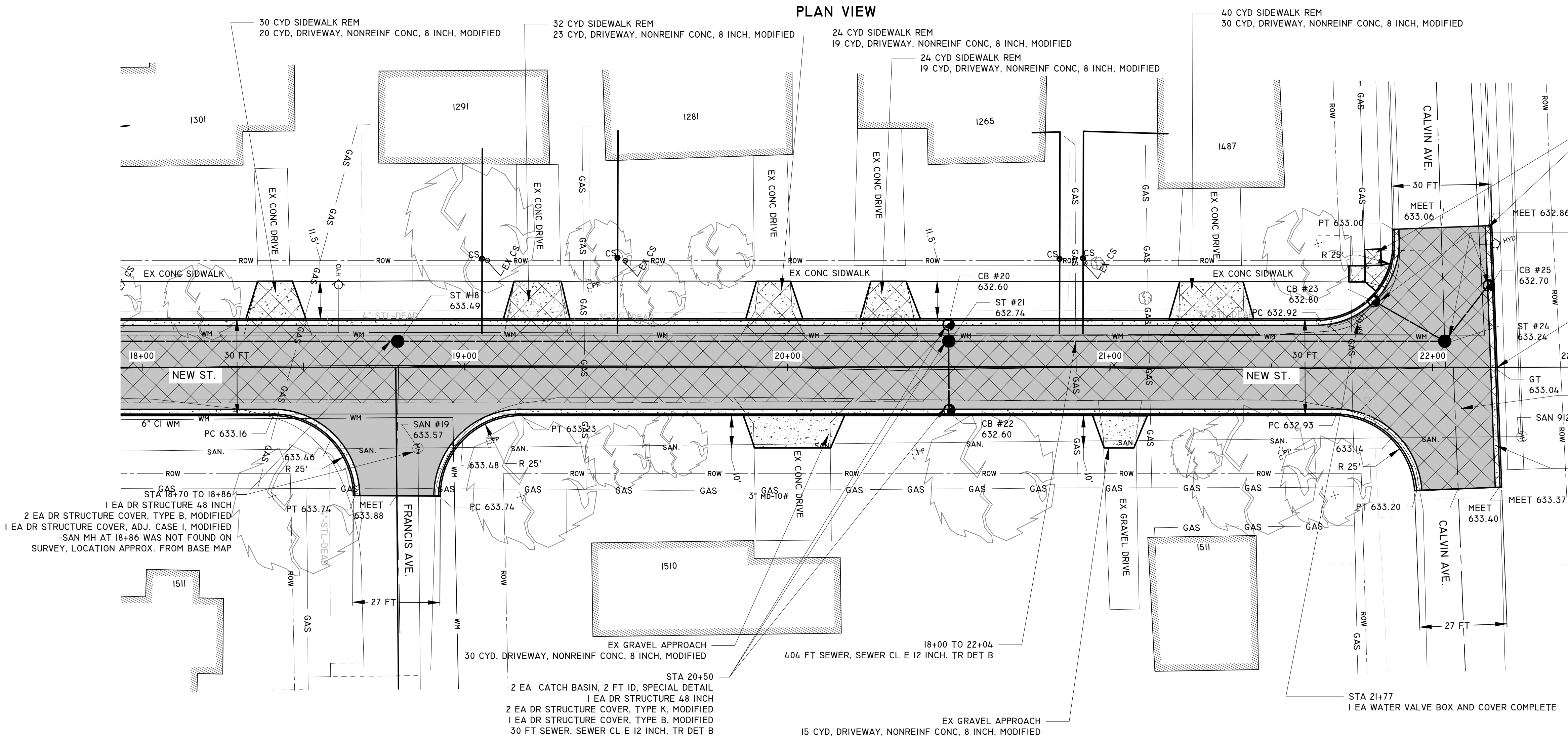
| QUANTITIES THIS SHEET | | |
|--|----------|------|
| DESCRIPTION | QUANTITY | UNIT |
| CURB AND GUTTER, REM | 0 | FT |
| SIDEWALK, REM | 174 | SYD |
| MACHINE GRADING MODIFIED | 4.5 | STA |
| EROSION CONTROL, INLET PROTECTION, FABRIC DROP | 2 | EA |
| AGGREGATE BASE, 8 INCH | 1404 | SYD |
| SEWER CL. E 12 INCH, TR DET B | 480 | FT |
| DR STRUCTURE, ADJ. CASE I, MODIFIED | 1 | EA |
| DR STRUCTURE COVER, TYPE B, MODIFIED | 3 | EA |
| DR STRUCTURE COVER, TYPE K, MODIFIED | 1 | EA |
| DR STRUCTURE COVER, TYPE D, MODIFIED | 1 | EA |
| DR STRUCTURE, 48 INCH DIA | 2 | EA |
| CATCH BASIN 2FT DIA SPECIAL DETAIL | 2 | EA |
| HMA SURFACE, REM | 1026 | SYD |
| HMA, 4EML, BASE AND LEVELING | 155 | TON |
| HMA, 4EML, TOP COURSE | 155 | TON |
| DRIVEWAY, NONREINF CONC, 8 INCH | 129 | SFT |
| CURB AND GUTTER, CONC, DET F4 MODIFIED | 907 | FT |
| SIDEWALK, CONC, 4 INCH | 0 | SFT |
| CURB RAMP, CONC, 7 INCH | 0 | SFT |
| TOPSOIL SURFACE, FURN, 4 INCH | 303 | SYD |
| HYDROSEEDING | 303 | SYD |
| WATER SERVICE, 1 INCH, COPPER TYPE K | 90 | FT |
| WATER SERVICE, PRIVATE PROPERTY, 1 INCH CORPORATION STOP, 1 INCH | 334 | FT |
| CURB STOP AND BOX, 1 INCH | 6 | EA |
| WATER SERVICE BUILDING CONNECTION, 1 INCH | 6 | EA |

PROFILE VIEW



NOTES:
Date: _____
Revisions:
1. _____
2. _____
3. _____
Drawn: K Parker
Date: _____
Checked: _____
Date: _____

PLAN VIEW



- 40 CYD SIDEWALK REM
169 FT CURB AND GUTTER REM
50 SFT SIDEWALK, CONC. 4 INCH
41 SFT CURB RAMP, CONC. 7 INCH
6 FT DETECTABLE WARNING SURFACE
- STA 21+82, 22+04, 22+18
2 EA CATCH BASIN, 2 FT ID, SPECIAL DETAIL
1 EA DR STRUCTURE 48 INCH
2 EA DR STRUCTURE COVER, TYPE K, MODIFIED
1 EA DR STRUCTURE COVER, TYPE B, MODIFIED
48 FT SEWER, SEWER CL E 12 INCH, TR DET B
- POE CL STA 22+20
- STA 18+00 TO 22+20
1184 SYD HMA SURFACE REM
1497 SYD AGGREGATE BASE, 8 INCH
4.5 STA MACHINE GRADING MODIFIED
165 TON HMA, 4E3, BASE AND LEVELING
165 TON HMA, 4E3, TOP
- STA 18+00 TO 22+20
907 FT CURB AND GUTTER, CONC. DET F4 MODIFIED

STA 18+70 TO 18+86
2 EA DR STRUCTURE COVER, TYPE B, MODIFIED
1 EA DR STRUCTURE COVER, ADJ. CASE 1, MODIFIED
SAN MH AT 18+86 WAS NOT FOUND ON SURVEY. LOCATION APPROX. FROM BASE MAP

STA 20+50
2 EA CATCH BASIN, 2 FT ID, SPECIAL DETAIL
1 EA DR STRUCTURE 48 INCH
2 EA DR STRUCTURE COVER, TYPE B, MODIFIED
1 EA DR STRUCTURE COVER, TYPE K, MODIFIED
30 FT SEWER, SEWER CL E 12 INCH, TR DET B

STA 21+77
1 EA WATER VALVE BOX AND COVER COMPLETE

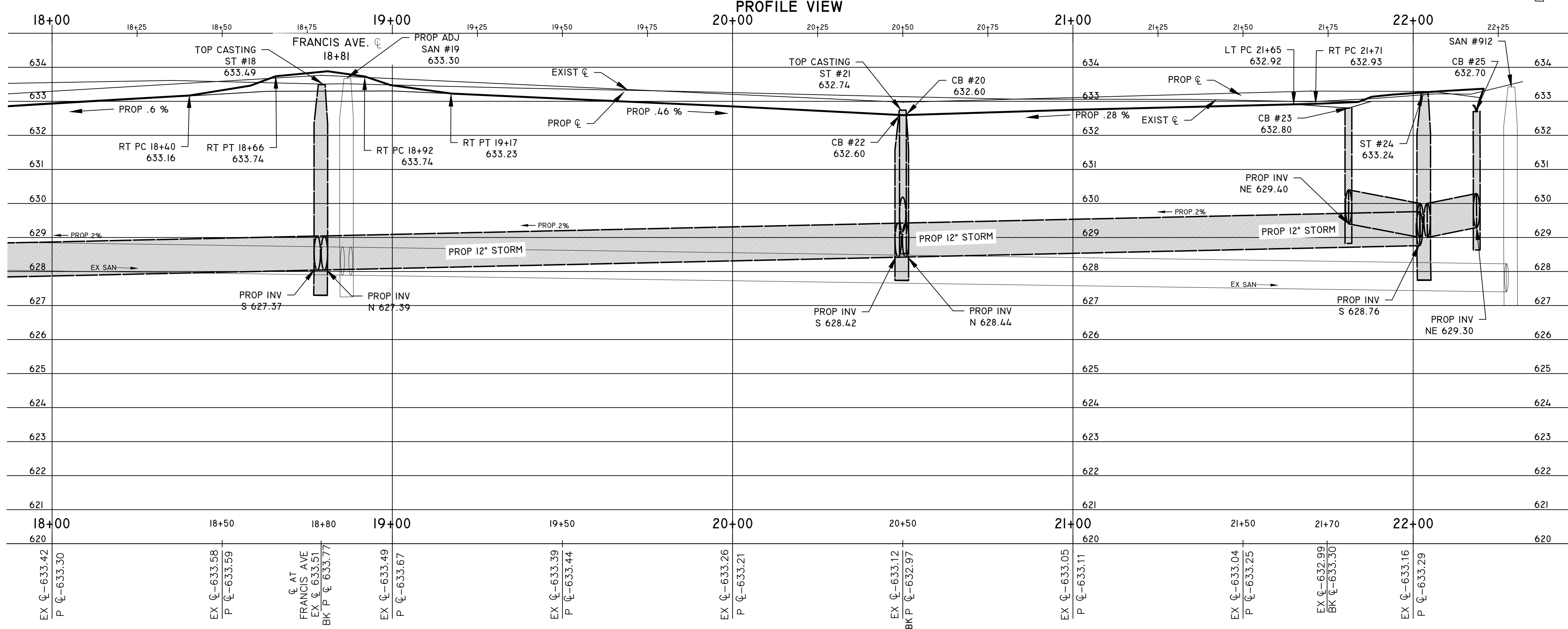
STATIONS 18+00 TO 22+50

| STRUCTURE INFO | | | | | | |
|------------------|----------|----------|---------------------|--|-------------------------------|--|
| STRUCTURE NUMBER | STATION | MATERIAL | PROP. RIM ELEVATION | INVERTS | NOTES | |
| ST #18 | 18+79 | PROP | 633.56 | N-12"-CONC-628.06 S-12"-CONC-628.04 | DR STRUCTURE 48 INCH | |
| SAN #19 | 18+86 | EX | 633.50 | - | STRUCTURE NOT FOUND ON SURVEY | |
| CB #20 | 20+50 LT | PROP | 632.60 | E-12"-629.20 | 2 FT SPECIAL DETAIL | |
| ST #21 | 20+50 | PROP | 632.74 | N-12"-CONC-628.44 E-12"-CONC-629.00 S-12"-CONC-628.42 W-12"-CONC-629.10 | DR STRUCTURE 48 INCH | |
| CB #22 | 20+50 RT | PROP | 632.60 | W-12"-CONC-629.20 | 2 FT SPECIAL DETAIL | |
| CB #23 | 21+82 LT | PROP | 632.90 | NE-12"-CONC-629.50 | 2 FT SPECIAL DETAIL | |
| ST #24 | 22+04 | PROP | 633.24 | NW-12"-CONC-629.00 S-12"-CONC-628.76 SW-12"-CONC-629.00 | DR STRUCTURE 48 INCH | |
| CB #25 | 22+18 | PROP | 632.70 | SE-12"-CONC-629.30 | 2 FT SPECIAL DETAIL | |
| SAN #912 | 22+28 | EX | 633.04 | - | | |

| 1 INCH WATER SERVICE SCHEDULE | | | | | | |
|-------------------------------|-------------|-------------|-------------------------|------------------|-----------------|---------------------|
| LOCATION | ADDRESS | 1 INCH CORP | ROW, 1 INCH COPPER (FT) | 1 INCH CURB STOP | PRIVATE, 1 INCH | BUILDING CONNECTION |
| 19+06 | 1291 NEW | 1 | 15 | 1 | 45 | 1 |
| 19+48 | 1281 NEW | 1 | 15 | 1 | 47 | 1 |
| 20+84 | 1265 NEW | 1 | 15 | 1 | 56 | 1 |
| 20+91 | 1487 CALVIN | 1 | 15 | 1 | 80 | 1 |
| TOTALS | | 4 EA | 60 FT | 4 EA | 228 FT | 4 EA |

| QUANTITIES THIS SHEET | | |
|--|----------|------|
| DESCRIPTION | QUANTITY | UNIT |
| CURB AND GUTTER, REM | 169 | FT |
| SIDEWALK, REM | 190 | SYD |
| MACHINE GRADING MODIFIED | 4.5 | STA |
| EROSION CONTROL, INLET PROTECTION, FABRIC DROP | 4 | EA |
| AGGREGATE BASE, 8 INCH | 1497 | SYD |
| SEWER CL E 12 INCH, TR DET B | 4.82 | FT |
| DR STRUCTURE, ADJ. CASE 1, MODIFIED | 1 | EA |
| DR STRUCTURE COVER, TYPE B, MODIFIED | 4 | EA |
| DR STRUCTURE COVER, TYPE K, MODIFIED | 4 | EA |
| DR STRUCTURE, 48 INCH DIA | 3 | EA |
| CATCH BASIN 2FT DIA SPECIAL DETAIL | 4 | EA |
| HMA SURFACE, REM | 1184 | SYD |
| HMA, 4EML, BASE AND LEVELING | 165 | TON |
| HMA, 4EML, TOP COURSE | 165 | TON |
| DRIVEWAY, NONREINF CONC, 8 INCH | 156 | SFT |
| CURB AND GUTTER, CONC, DET F4 MODIFIED | 907 | FT |
| DETECTABLE WARNING SURFACE | 6 | FT |
| SIDEWALK, CONC, 4 INCH | 50 | SFT |
| SIDEWALK, CONC, 8 INCH | 0 | SFT |
| CURB RAMP, CONC, 7 INCH | 41 | SFT |
| TOPSOIL SURFACE, FURN, 4 INCH | 303 | SYD |
| HYDROSEEDING | 303 | SYD |
| WATER SERVICE, 1 INCH, COPPER TYPE K | 60 | FT |
| WATER SERVICE, PRIVATE PROPERTY, 1 INCH | 228 | FT |
| CORPORATION STOP, 1 INCH | 4 | EA |
| CURB STOP AND BOX, 1 INCH | 4 | EA |
| WATER SERVICE BUILDING CONNECTION, 1 INCH | 4 | EA |
| WATER VALVE BOX AND COVER, COMPLETE | 1 | EA |

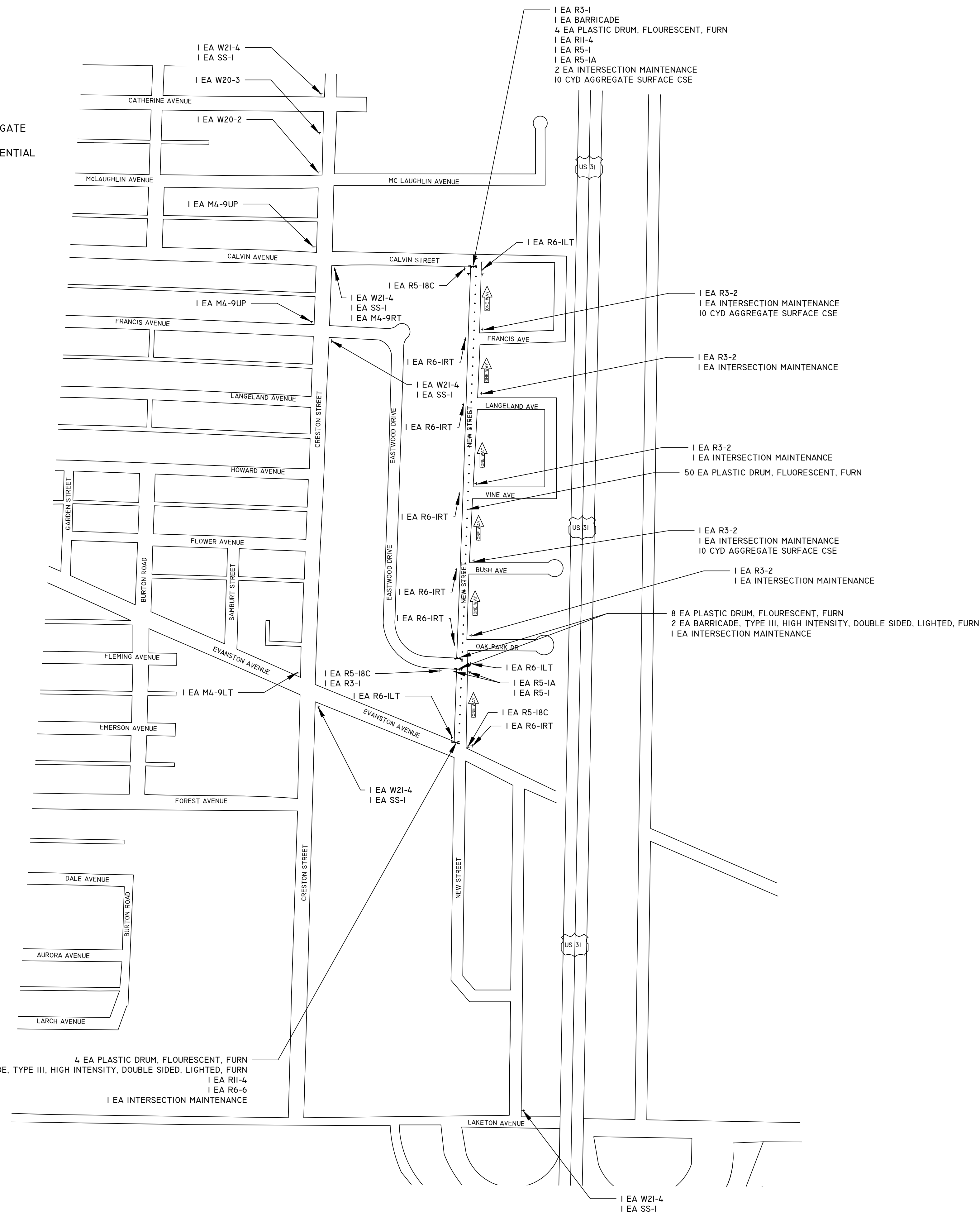
PROFILE VIEW



Drawn: K. Parker
Date: _____
Checked: _____
Date: _____

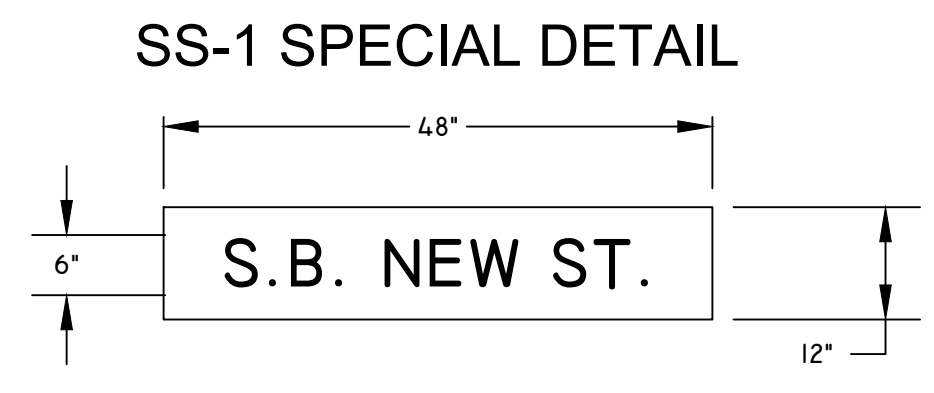
CITY OF MUSKOGON
OFFICE OF THE CITY ENGINEER
H 92341 NEW ST.,
EVANSTON TO CALVIN

- HMA TOP COURSE SHALL BE PLACED AFTER ALL WORK, EXCEPT PAVEMENT MARKING, IS COMPLETE.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO BUSINESSES, RESIDENCES, AND CROSS STREETS WITH MAINTENANCE GRAVEL AS DIRECTED BY THE ENGINEER. CONTRACTOR MAY USE AGGREGATE OR HMA MILLINGS. AGGREGATE OR HMA MILLINGS USED TO MAINTAIN TRAFFIC WILL BE PAID AT THE BID PROPOSAL UNIT PRICE FOR INTERSECTION MAINTENANCE OR DRIVEWAY MAINTENANCE, RESIDENTIAL BY EA.
- DURING CONSTRUCTION TRAFFIC TO RESIDENCES AND LOCAL BUSINESSES SHALL BE MAINTAINED ON EXISTING HARD SURFACE OR AGGREGATE BASE. SOIL BORES SHOW INADEQUATE SUB BASE FOR TRAFFIC MAINTENANCE ON MILLED SURFACE WITHOUT AGGREGATE BASE INSTALLATION.
- IN ADDITION TO THE 70 PLASTIC DRUMS USED AS CHANNELING DEVICES AND IN CONJUNCTION WITH TYPE III BARRICADES, THE CONTRACTOR WILL SUPPLY AN ADDITIONAL 30 PLASTIC DRUMS FOR IDENTIFYING HAZARDS IN THE CONSTRUCTION ZONE.
- ONE WAY TRAFFIC WILL BE MAINTAINED FOR NORTH BOUND TRAFFIC FROM EVANSTON TO CALVIN. SOUTHBOUND TRAFFIC WILL BE DETOURED ON CRESTON SB FROM CALVIN, TO EVANSTON EB, TO NEW ST NB.



| SIGN, TYPE B, TEMPORARY | | | | | |
|-------------------------|-----------------------------|----------|-------|----------|----------|
| SIGN | DESCRIPTION | QUANTITY | DIM | AREA | TOTAL |
| M4-9 L | DETOUR LEFT | 1 | 24X30 | 5 SFT | 5 SFT |
| M4-9 UP | DETOUR UP | 2 | 24X30 | 5 SFT | 10 SFT |
| M4-9 RT | DETOUR RIGHT | 1 | 24X30 | 5 SFT | 5 SFT |
| R3-1 | NO RIGHT TURN | 2 | 24X24 | 4 SFT | 8 SFT |
| R3-2 | NO LEFT TURN | 5 | 24X24 | 4 SFT | 20 SFT |
| R5-1 | DO NOT ENTER | 2 | 30X30 | 6.25 SFT | 12.5 SFT |
| R5-1A | WRONG WAY | 2 | 24X36 | 6 SFT | 12 SFT |
| R5-18C | WORK ZONE BEGINS | 3 | 48X48 | 16 SFT | 48 SFT |
| R6-6 | ONE WAY BEGINS | 1 | 30X36 | 7.5 SFT | 7.5 SFT |
| R6-1 RT | ONE WAY ARROW RIGHT | 6 | 36X12 | 3 SFT | 18 SFT |
| R6-1 LT | ONE WAY ARROW LEFT | 3 | 36X12 | 3 SFT | 9 SFT |
| R11-4 | ROAD CLOSED TO THRU TRAFFIC | 2 | 30X60 | 12.5 SFT | 25 SFT |
| W20-2 | DETOUR AHEAD | 1 | 48X48 | 16 SFT | 16 SFT |
| W20-3 | ROAD CLOSED AHEAD | 1 | 48X48 | 16 SFT | 16 SFT |
| W21-4 | ROAD WORK AHEAD | 4 | 48X48 | 16 SFT | 64 SFT |
| | | | | | 276 SFT |

| SIGN, TYPE B, TEMPORARY, SPECIAL | | | |
|----------------------------------|----------|-------|--------|
| DESCRIPTION | QUANTITY | AREA | TOTAL |
| SS-1 | 5 | 4 SFT | 20 SFT |
| | | | 20 SFT |



| QUANTITIES THIS SHEET | | |
|--|----------|------|
| DESCRIPTION | QUANTITY | UNIT |
| MINOR TRAFFIC DEVICES | 1 | LS |
| BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN | 4 | EA |
| BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, OPER | 4 | EA |
| PLASTIC DRUM, FLUORESCENT, FURN | 100 | EA |
| PLASTIC DRUM, FLUORESCENT, OPER | 100 | EA |
| SIGN, TYPE B, TEMP, PRISMATIC, FURN | 276 | SFT |
| SIGN, TYPE B, TEMP, PRISMATIC, OPER | 276 | SFT |
| SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, FURN | 20 | SFT |
| SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, OPER | 20 | SFT |
| DRIVEWAY MAINTENANCE, RESIDENTIAL | 32 | EA |
| INTERSECTION MAINTENANCE | 9 | EA |
| POST, MAILBOX | 12 | EA |
| AGGREGATE SURFACE CSE | 30 | CYD |

Revisions: 1. 2. 3.
 Date: _____
 Drawn: K. Parker
 Date: _____
 Checked: _____
 Date: _____
CITY OF MUSKEGON H 92341 NEW ST.,
OFFICE OF THE CITY ENGINEER EVANSTON TO CALVIN