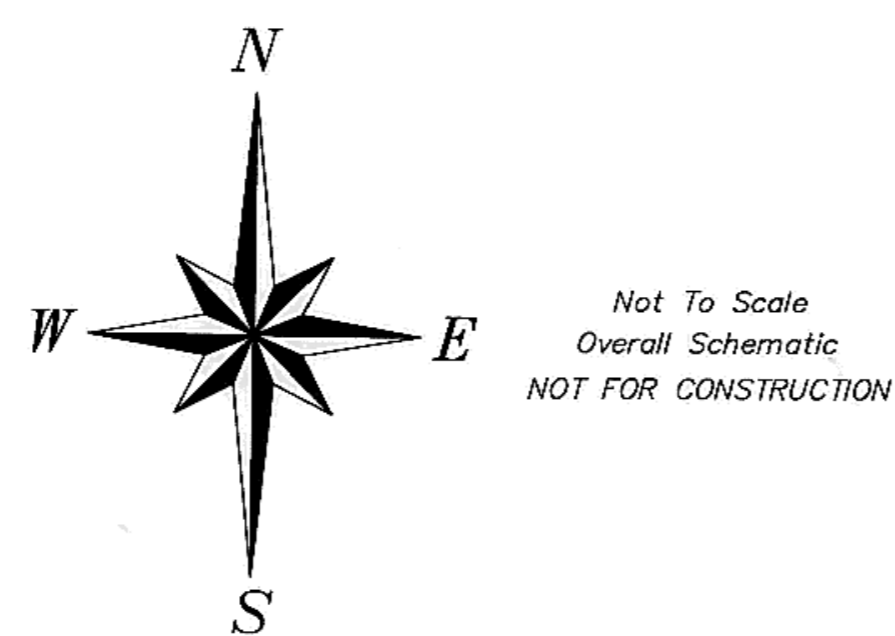


**CONSTRUCTION PLANS FOR
STREET PAVEMENTS AND LIGHTING
IMPROVEMENTS IN
LAKEWOOD COMMERCIAL PARK
2ND ADDITION
PROJECT 2003-13
DISTRICT #117 AREA G
MANDAN, NORTH DAKOTA**



APPROXIMATE QUANTITIES - ENTIRE PROJECT

<u>GRADING ITEMS</u>	
Grading	1 LS
Subgrade Watering	10 MGAL
Seeding	1,015 SY
Topsailing	1,015 SY
<u>ASPHALT ITEMS</u>	
AC Base Course (Class B)	1,420 TON
AC Surface Course (Class B)	990 TON
Bituminous Tack Oil	575 GAL
Aggregate Seal Course	8,690 SY
Adjust Manhole Casting	4 EA
<u>CONCRETE ITEMS</u>	
Concrete Drain	2 EA
Standard Curb & Gutter	2,723 LF
Adjust Inlet Casting	4 EA
<u>STORM SEWER ITEMS</u>	
18" RCP Storm Sewer	123 LF
24" RCP Storm Sewer	195 LF
18" RCP F.E.S.	1 EA
Salvage & Reset 18" F.E.S.	1 EA
24" RCP F.E.S.	4 EA
Rectangular Inlet (2'x3')	4 EA
60" Manhole Inlet	1 EA
Subcut Gravel	110 TON
<u>STREET LIGHT ITEMS</u>	
Type 'B' Street Light Unit	7 EA
Three #4 Conductors	1,250 LF
Two #4 Conductors	250 LF
Trenching (27" Deep)	1,400 LF
Existing Circuit Disconnect/Reconnect	1 LOT
Sodding	20 SY
<u>MISCELLANEOUS ITEMS</u>	
Signage	1 LS

ELECTRICAL ENGINEER'S CERTIFICATE
I, GREGORY R. DOCKTER, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE ELECTRICAL PLANS FOR STREET PAVEMENT AND LIGHTING IMPROVEMENT PROJECT 2003-13, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

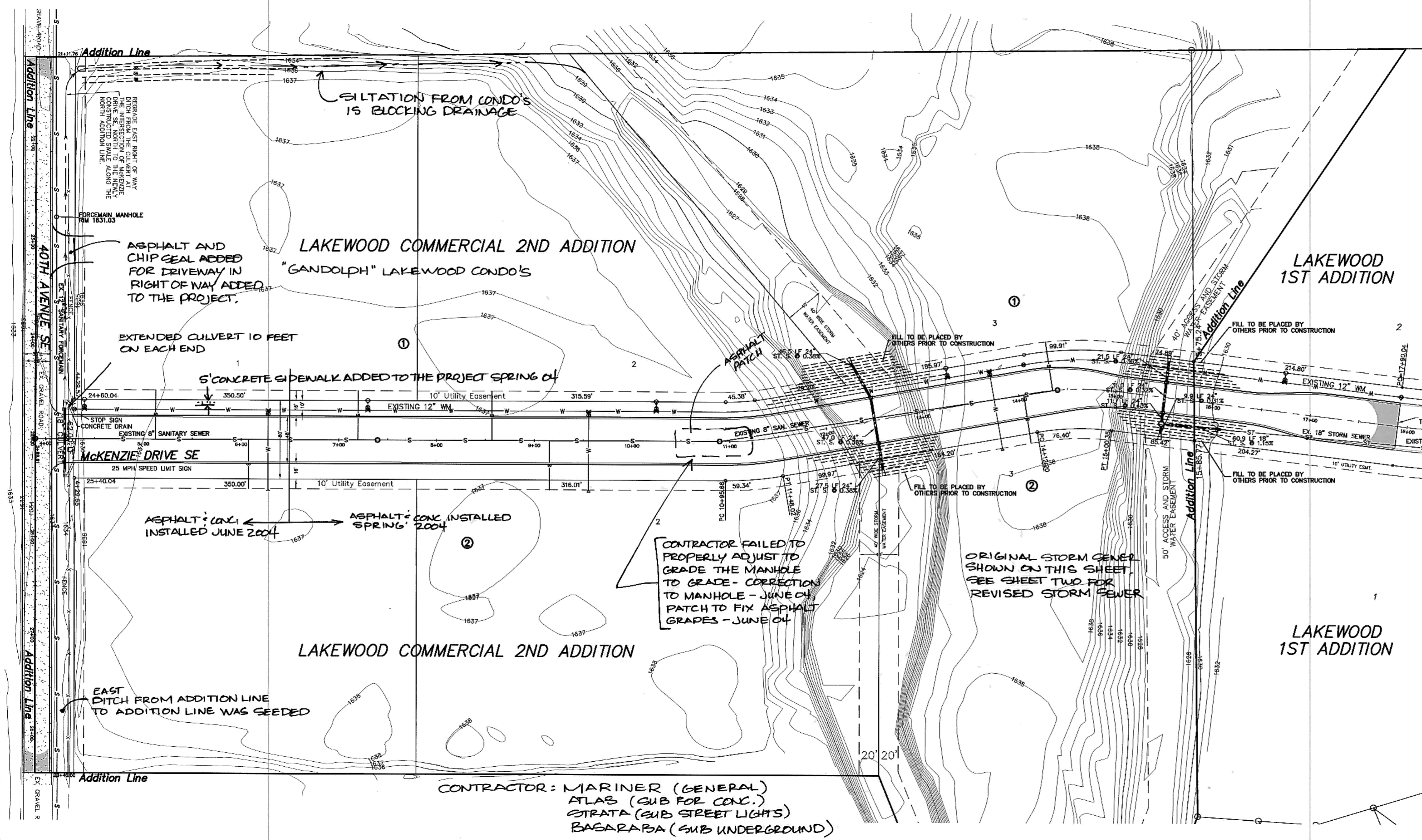
GREGORY R. DOCKTER, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 2315

CIVIL ENGINEER'S CERTIFICATE
I, MARK S. SWENSON, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE CIVIL PLANS FOR STREET PAVEMENT AND LIGHTING IMPROVEMENT PROJECT 2003-13, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

MARK S. SWENSON, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 3620

APPROVAL OF CITY ENGINEER
I, THOMAS LITTLE, CITY ENGINEER FOR THE CITY OF MANDAN, NORTH DAKOTA, HEREBY APPROVE THESE PLANS FOR STREET PAVEMENT & LIGHTING IMPROVEMENTS, MANDAN, NORTH DAKOTA AS SHOWN ON THE ACCOMPANYING PLANS.

THOMAS LITTLE, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 CITY ENGINEER
 MANDAN, NORTH DAKOTA



OWNER

City of Mandan
205 2nd Avenue NW
Mandan, ND 58554

SHEET INDEX

TITLE PAGE	SHEET 1
McKENZIE DRIVE	SHEET 2
40TH AVENUE SE	SHEET 3
ELECTRICAL SITE PLAN	SHEET 4
ELECTRICAL DETAILS	SHEET 5

WARRANTY / DISCLAIMER

The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co personnel inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR

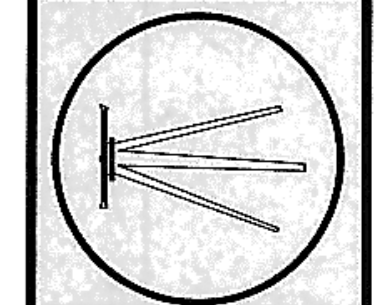
In accordance with generally accepted construction practices the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

UTILITY NOTICE TO CONTRACTOR

The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the Owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locates can be made by using the "One Call" number 1-800-795-0555.

**STREET PAVEMENTS AND LIGHTING
PROJECT 2003-13
DISTRICT 117 AREA G**

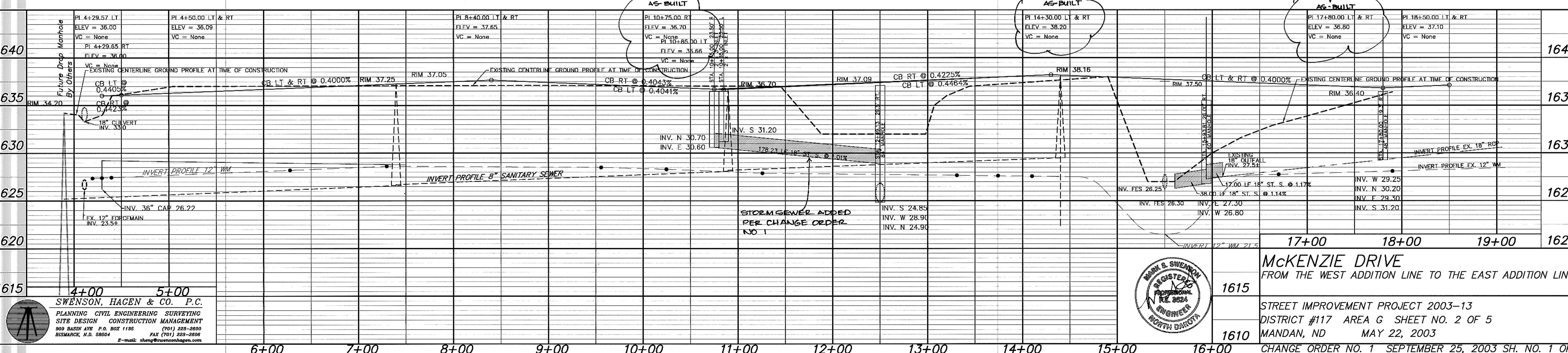
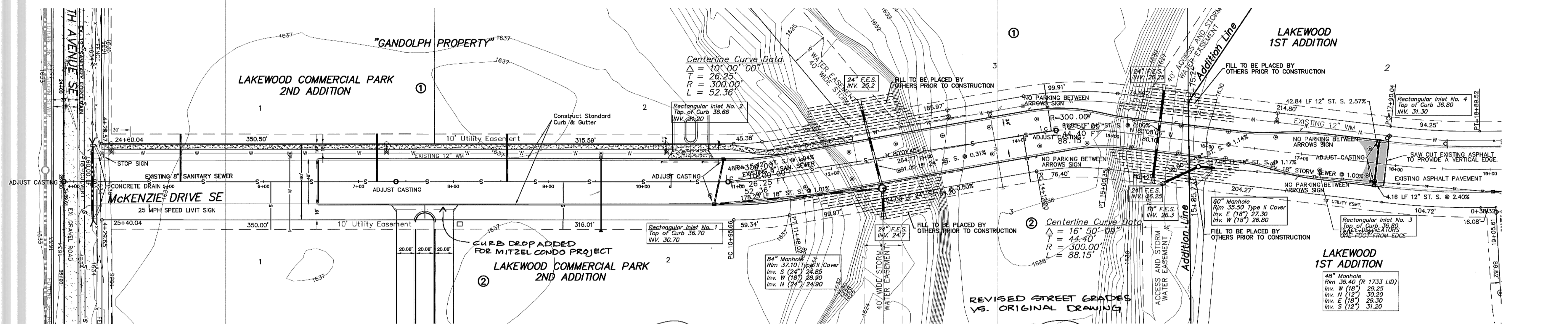
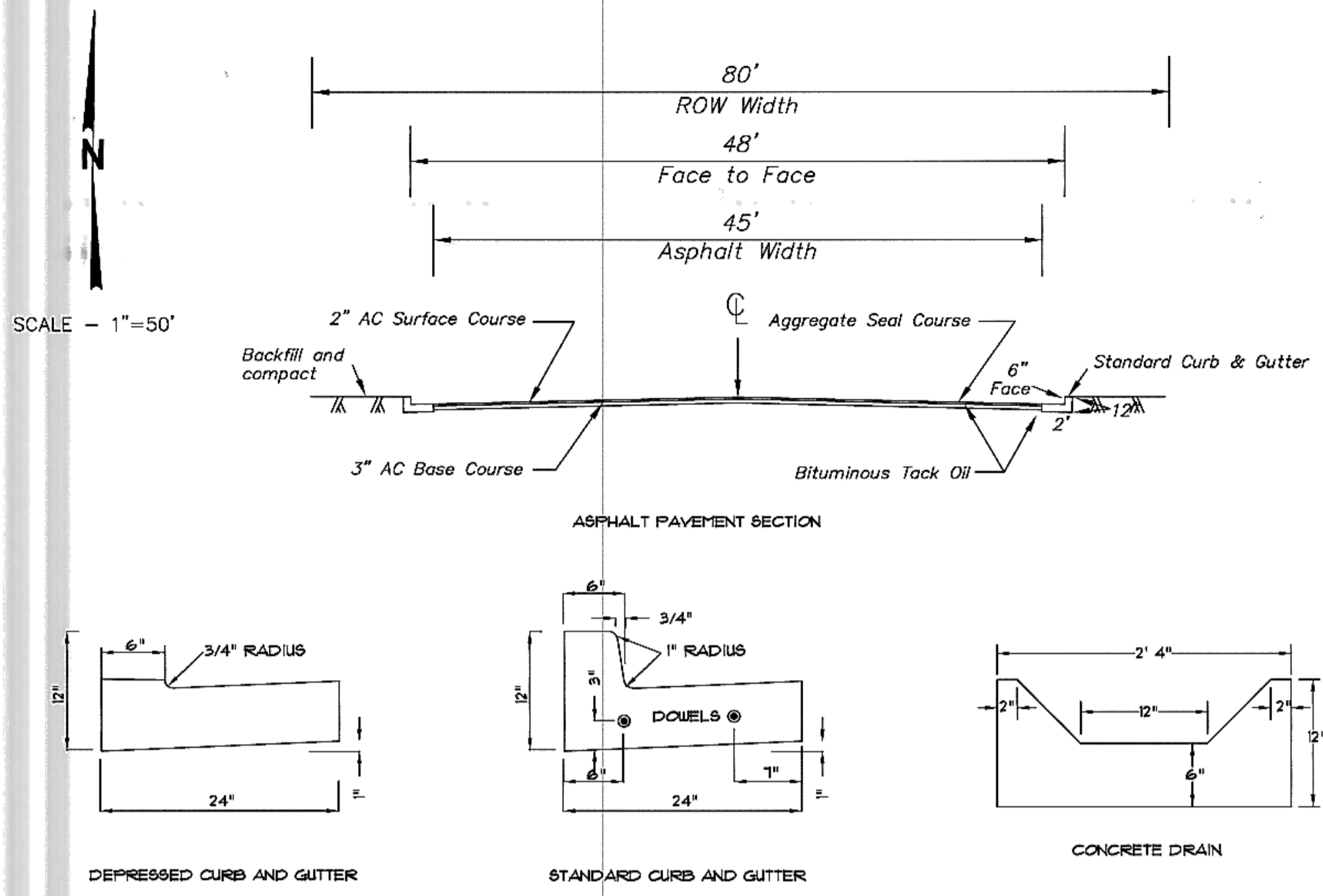
SWENSON, HAGEN & CO. P.C.
PLANNING CIVIL ENGINEERING SURVEYING
SITE DESIGN CONSTRUCTION MANAGEMENT
908 BASIN AVE P.O. BOX 1195
BISMARCK, N.D. 58504
(701) 228-2600
FAX (701) 223-2606



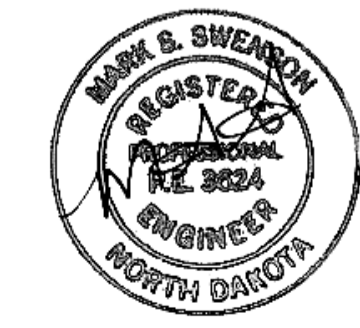
DRAWN BY: _____
CHECK BY: G.J.F.
DATE: 5-9-03
FILE DESC: _____
COMPUTER FILE: _____
SURVEY FILE: _____

CONSTRUCTION NOTES (THIS SHEET)

1. REMOVE AND DISPOSE OF OFFSITE ALL EXISTING CURB & ASPHALT AS NECESSARY FOR THE CONSTRUCTION ASSOCIATED WITH THIS PROJECT. ALL COSTS FOR REMOVALS SHALL BE INCIDENTAL.
2. GRADE, SHAPE AND COMPACT SUBGRADE FOR CURB & GUTTER AND STREET CONSTRUCTION.
3. SUBGRADE WATERING SHALL ONLY BE PERFORMED IF DEEMED NECESSARY BY THE ENGINEER.
4. EXCESS SOILS EXCAVATED DURING THE GRADING STAGE SHALL BE EVENLY SPREAD IN THE RIGHT OF WAY, BEHIND THE FUTURE CURB & GUTTER OR ON THE LAKEWOOD LOTS IF DIRECTED BY THE ENGINEER.
5. CONSTRUCT CONCRETE ITEMS PER DETAILS ON THIS SHEET. AFTER THE CURB AND GUTTER HAS GAINED SUFFICIENT STRENGTH, SOILS SHALL BE BACKFILLED AND COMPACTED AGAINST THE CURB. ALL WORK INCLUDING BACKFILLING SHALL BE CONSIDERED INCIDENTAL TO THE "CURB & GUTTER" BID ITEM.
6. THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL SURVEY MONUMENTS. MONUMENTS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A REGISTERED SURVEYOR. MONUMENTS ARE LOCATED ON THE RIGHT OF WAY CURVATURE POINTS AND BLOCK CORNERS.
7. CURB DROPS FOR DRIVEWAYS AND HANDICAP RAMPS MAY BE CONSTRUCTED DURING CONSTRUCTION OF THE CONCRETE CURB & GUTTER. THE EXACT LOCATION OF CURB DROPS FOR DRIVEWAYS IS NOT CURRENTLY KNOWN. DROP CURB SHALL BE CONSIDERED STANDARD CURB & GUTTER FOR MEASUREMENT AND PAYMENT.
8. CONSTRUCT 5" THICK AC PAVEMENT PER THE DETAIL ON THIS SHEET.
9. CONSTRUCT STORM SEWER WHERE INDICATED. STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE. ALL RCP JOINTS UNDER PAVED AREAS SHALL HAVE EITHER A P4 OR CX-4 (CRETEX STANDARD) JOINT. THE 91.85' LONG LEG IS EXCLUDED FROM THE REQUIREMENT FOR P4 OR CX-4 JOINTS. CONSTRUCT 1" EXPANSION JOINTS ON EACH SIDE OF ALL INLETS. THE BACK SECTIONS USING ADJUSTABLE STEEL BOLT TIES THREE JOINTS FROM THE FLARED END SECTIONS. BACKFILL SHALL BE CLASS A.
10. DRILL INTO THE EXISTING CURB ON MCKENZIE DRIVE SE AND INSTALL TWO 3/4" DOWELS PER CURB. ALL DOWELING SHALL BE CONSIDERED INCIDENTAL TO THE "CURB & GUTTER" BID ITEM.
11. RECTANGULAR INLETS SHALL BE CRETEX SINGLE INLET (2' X 3' INSIDE DIMENSION) WITH NEENAH R3290 CASTING AND TYPE L VANE GRATE OR ENGINEER APPROVED EQUAL.
12. ADJUST ALL CASTINGS OF MANHOLES AND INLETS TO TRUE FINAL GRADE. ALL RINGS ON ROUND MANHOLES LOCATED WITHIN PAVEMENT SHALL BE SEALED USING AN EXTERIOR SEAL (CRETEX EXTERIOR CHIMNEY SEAL OR ENGINEER APPROVED EQUAL). RECTANGULAR INLETS SHALL BE SEALED BY CONSTRUCTING A FULL CIRCUMFERENCE CONCRETE GROUT BED FOR THE RINGS. CONCRETE GROUTING OF RECTANGULAR INLETS SHALL BE WATER AND SILT INFILTRATION RESISTANT. DO NOT BACKFILL THE SEALED RINGS OF EITHER RECTANGULAR OR ROUND INLETS UNTIL ENGINEERING INSPECTION HAS OCCURRED.
13. CONSTRUCT CONCRETE DRAINS AND A SPLASH PAD FROM THE END OF THE CURB ON MCKENZIE DRIVE SE TO THE FLOW LINE OF THE 18" CULVERT ON THE EAST SIDE OF 40TH AVENUE SE.
14. REMOVE AND SALVAGE THE 18" RCP FLARED END SECTION AT APPROXIMATELY STA. 16+00 AND RESET IT ON THE END OF THE SAME EXTENDED STORM SEWER LINE.
15. REMOVE AND DISPOSE OF OFFSITE THE EROSION CONTROL BLANKET AT THE END OF THE EXISTING 18" STORM SEWER INCIDENTAL TO OTHER BID ITEMS.
16. REMOVE AND SALVAGE THE EXISTING "ROAD CLOSED" BARRICADE AT THE WEST END OF MCKENZIE DRIVE SE INCIDENTAL TO THE SIGNAGE BID ITEM. THIS BARRICADE SHALL BE USED ON ANOTHER PROJECT WITHIN DISTRICT NO. 117.
17. THE SITE WILL BE GRADED AS SHOWN BY THE EXISTING GROUND PROFILE AT TIME OF CONSTRUCTION AS SHOWN IN THE PROFILE. HOWEVER, THE CONTRACTOR MAY COORDINATE WITH THE DEVELOPER TO HAVE THE TWO CHANNEL CROSSINGS FILLED TO GRADE IN STAGES IN ORDER TO MINIMIZE THE TRENCH DEPTHS FOR CONSTRUCTING THE STORM SEWER. THE OWNER WILL FILL THE CHANNELS TO GRADE PRIOR TO CONSTRUCTION OF THE CURB & GUTTER, PAVEMENT AND STREET LIGHTS.
18. STOP SIGN AT 40TH SHALL BE 30" IN DIAMETER. SPEED LIMIT AND NO PARKING SIGNS SHALL BE 24" X 30". CONSTRUCT THREE NO PARKING BETWEEN ARROWS SIGNS ON EACH SIDE OF MCKENZIE DRIVE. SEE THE LAKEWOOD SECOND PLANS SHEET 10 FOR FURTHER SIGNAGE REQUIREMENTS.
19. AT STA. 17+80 CONSTRUCT THE 48" MANHOLE OVER THE EXISTING 18" RCP STORM SEWER. CUT OUT THE TOP HALF OF THE 18" STORM SEWER INSIDE OF THE MANHOLE AND GROUT THE ANNULAR SPACE BETWEEN THE 18" STORM SEWER AND THE INSIDE WALLS OF THE MANHOLE. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "48" CONCRETE MANHOLE" BID ITEM.

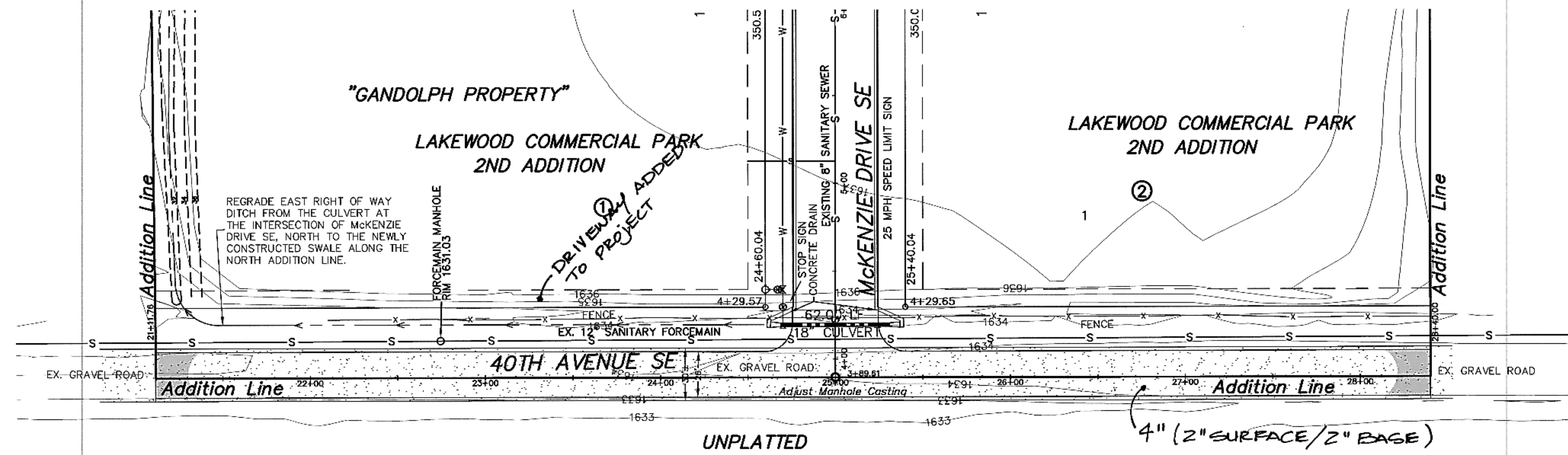


SWENSON, HAGEN & CO. P.C.
 PLANNING CIVIL ENGINEERING SURVEYING
 SITE DESIGN CONSTRUCTION MANAGEMENT
 909 BASKIN AVE. P.O. BOX 1195 (701) 223-2800
 BISMARCK, N.D. 58504 FAX (701) 223-2800
 E-mail: sheng@swensons-hagen.com



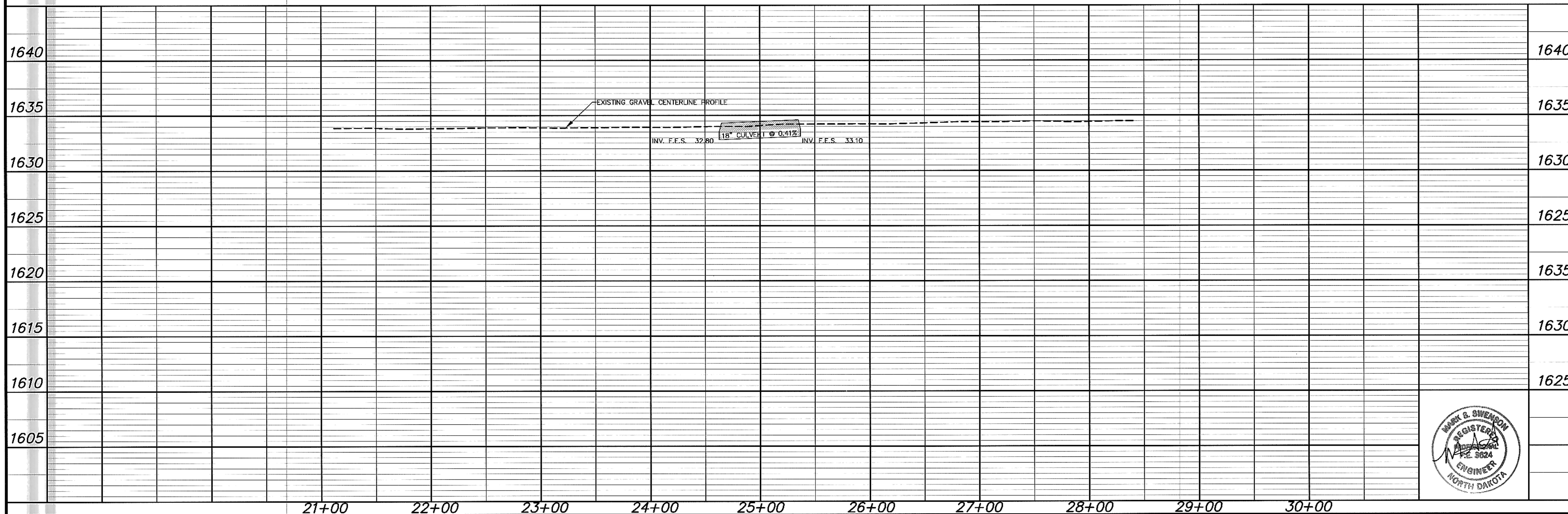
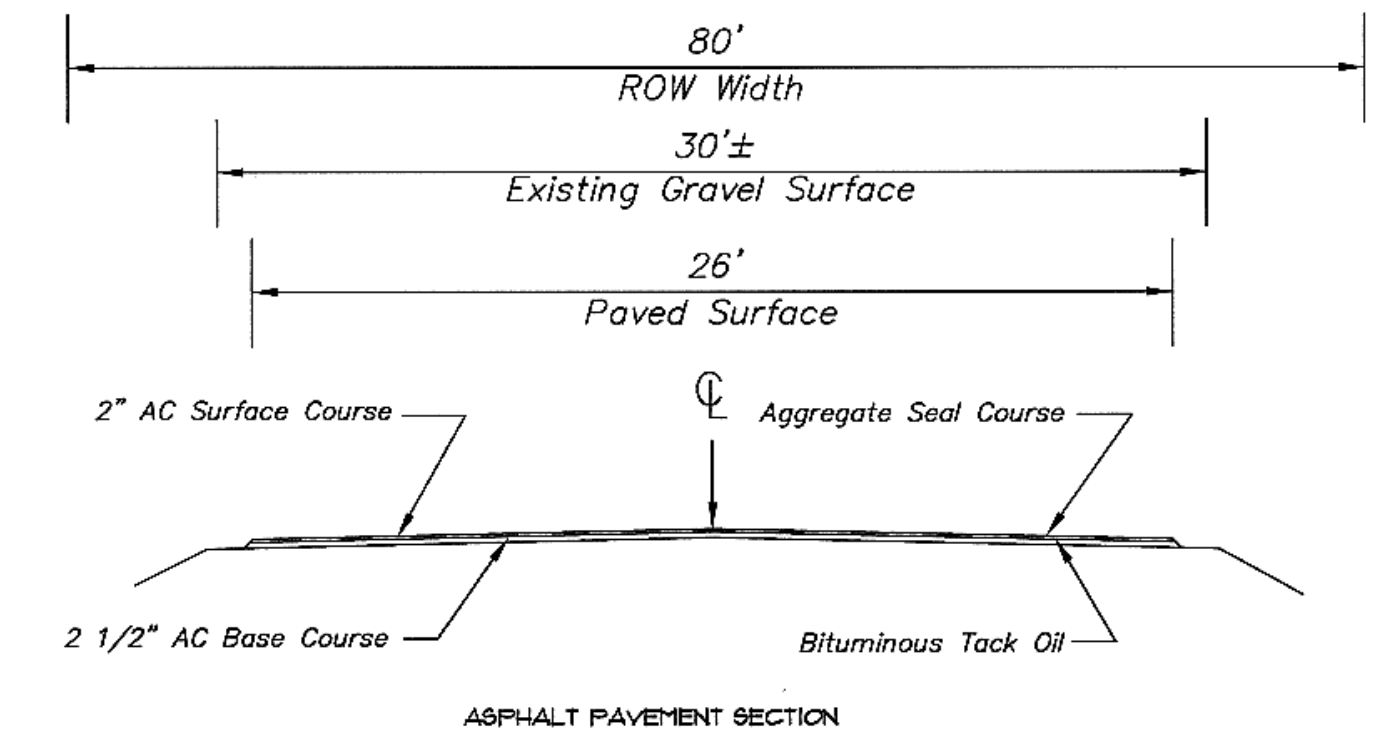
MCKENZIE DRIVE
 FROM THE WEST ADDITION LINE TO THE EAST ADDITION LINE
 STREET IMPROVEMENT PROJECT 2003-13
 DISTRICT #117 AREA G SHEET NO. 2 OF 5
 MANDAN, ND MAY 22, 2003
 CHANGE ORDER NO. 1 SEPTEMBER 25, 2003 SH. NO. 1 OF 1

SCALE - 1"=50'



CONSTRUCTION NOTES (THIS SHEET)

1. GRADE, SHAPE AND COMPACT THE EXISTING GRAVEL SURFACE FOR STREET CONSTRUCTION. CONSTRUCT A CROWN WITH A 2% CROSS SLOPE.
2. THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL SURVEY MONUMENTS. MONUMENTS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A REGISTERED SURVEYOR. MONUMENTS ARE LOCATED ON THE RIGHT OF WAY CURVATURE POINTS AND BLOCK CORNERS.
3. CONSTRUCT 4 1/2" THICK AC PAVEMENT PER THE DETAIL ON THIS SHEET.
4. CONSTRUCT STORM SEWER WHERE INDICATED. STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE. ALL RCP JOINTS UNDER PAVED AREAS SHALL HAVE EITHER A P4 OR CX-4 (CRETEX STANDARD) JOINT.
5. TIE BACK ALL SECTIONS OF THE 18" CULVERT USING ADJUSTABLE STEEL BOLT TIES. BACKFILL SHALL BE CLASS A.
6. STRIP TOPSOIL AND REGRADE THE EAST RIGHT OF WAY DITCH FROM THE 18" CULVERT AT THE INTERSECTION OF MCKENZIE DRIVE SE, NORTH TO THE NEWLY CONSTRUCTED SWALE (BY OTHERS) ALONG THE NORTH ADDITION LINE. REPLACE TOPSOIL AND SEED ALL DISTURBED AREAS WITHIN THE EAST RIGHT OF WAY.
7. A SANITARY SEWER PROJECT IS TO BE CONSTRUCTED ON 40TH AVENUE SE THIS YEAR. THE STREET IMPROVEMENT CONTRACTOR MAY NOT BE ABLE TO PERFORM THE WORK UNDER THE DISTRICT NO. 117 CONTRACT UNTIL THIS SANITARY SEWER PROJECT IS COMPLETED IN THE AREAS TO RECEIVE PAVEMENT IMPROVEMENTS.
8. REMOVE AND DISPOSE OF OFFSITE THE BARBED WIRE FENCE ALONG 40TH AVENUE SE AS REQUIRED TO CONSTRUCT IMPROVEMENTS.
9. USE THE 18" FLARED END SECTION THAT WAS SALVAGED AT APPROXIMATELY STA. 16+00 MCKENZIE DRIVE SE ON THE 18" CULVERT AT THE INTERSECTION OF 40TH AVENUE SE AND MCKENZIE DRIVE SE.



SWENSON, HAGEN & CO. P.C.
 PLANNING CIVIL ENGINEERING SURVEYING
 SITE DESIGN CONSTRUCTION MANAGEMENT
 809 BASIN AVE P.O. BOX 1195 (701) 222-8600
 BISMARCK, N.D. 58104 FAX (701) 222-2606
 E-mail: shagy@swensonhagen.com

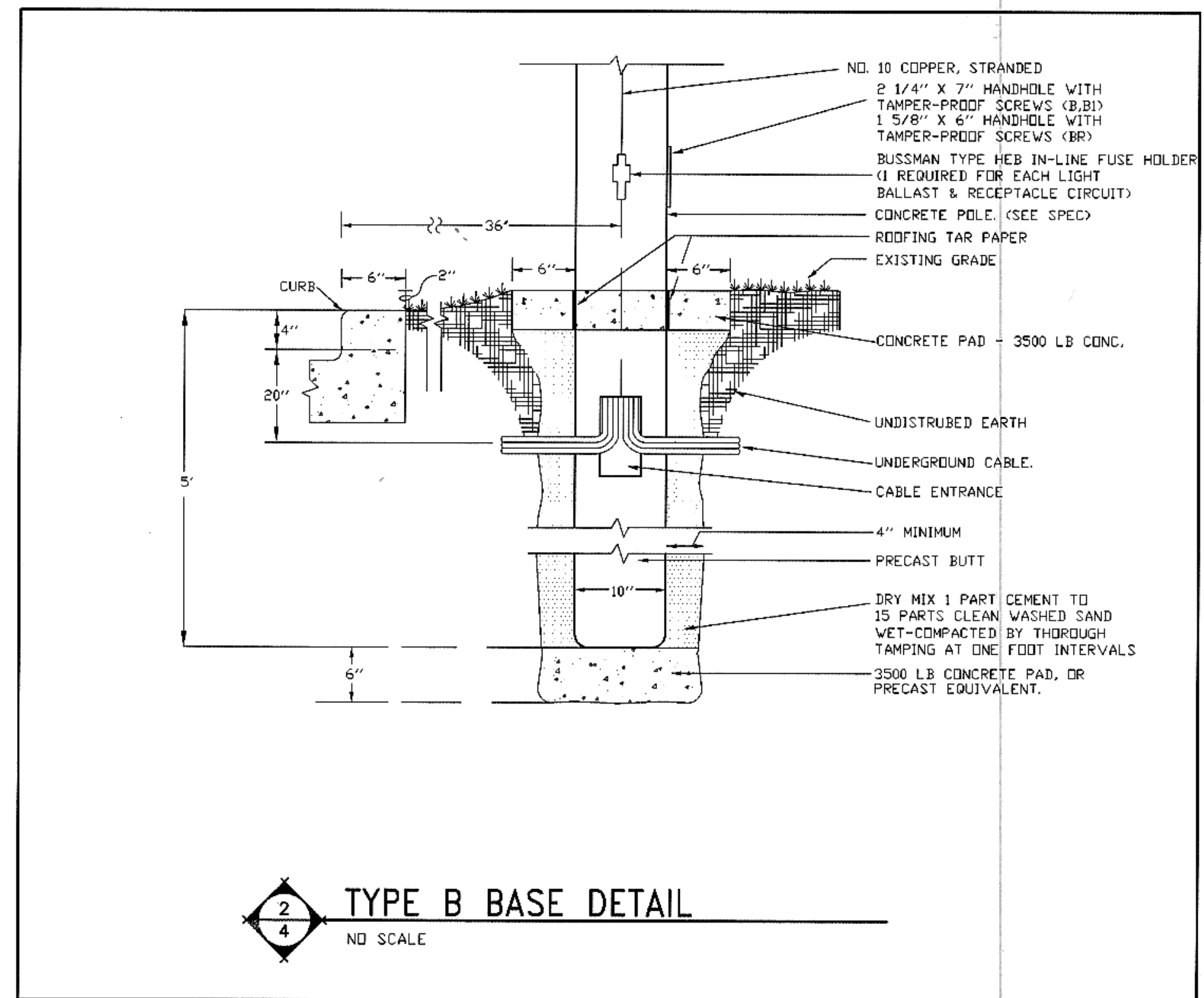
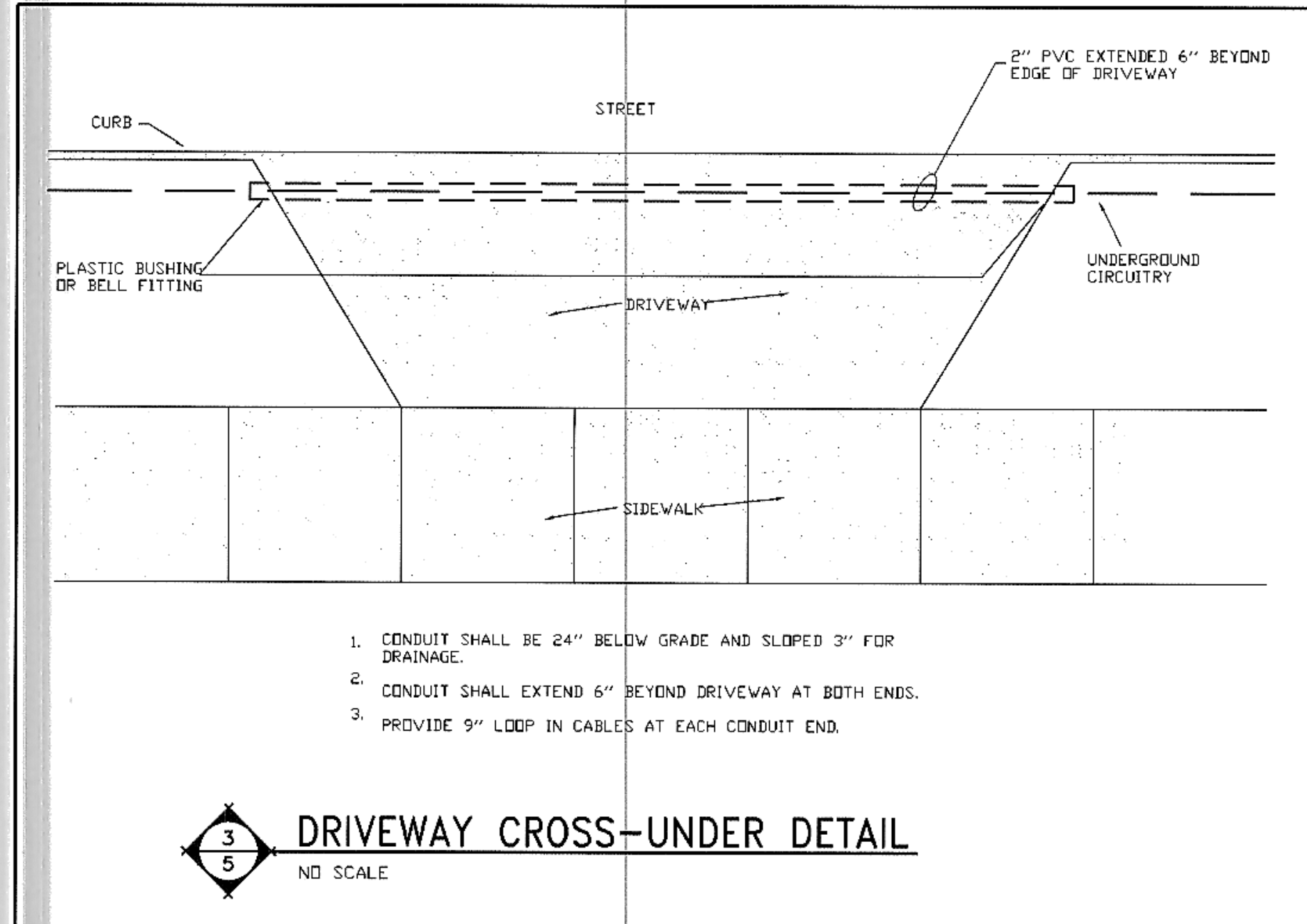
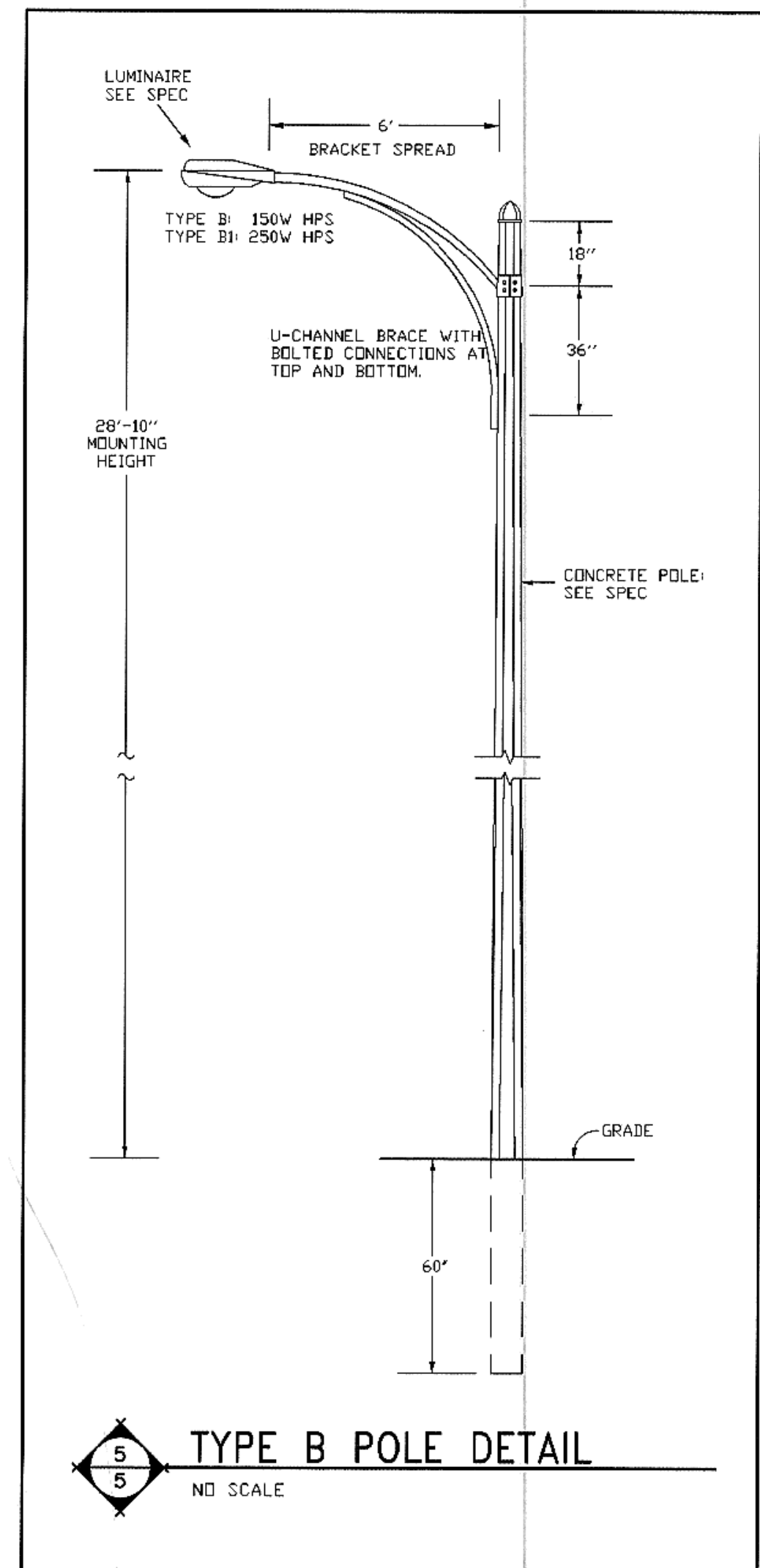
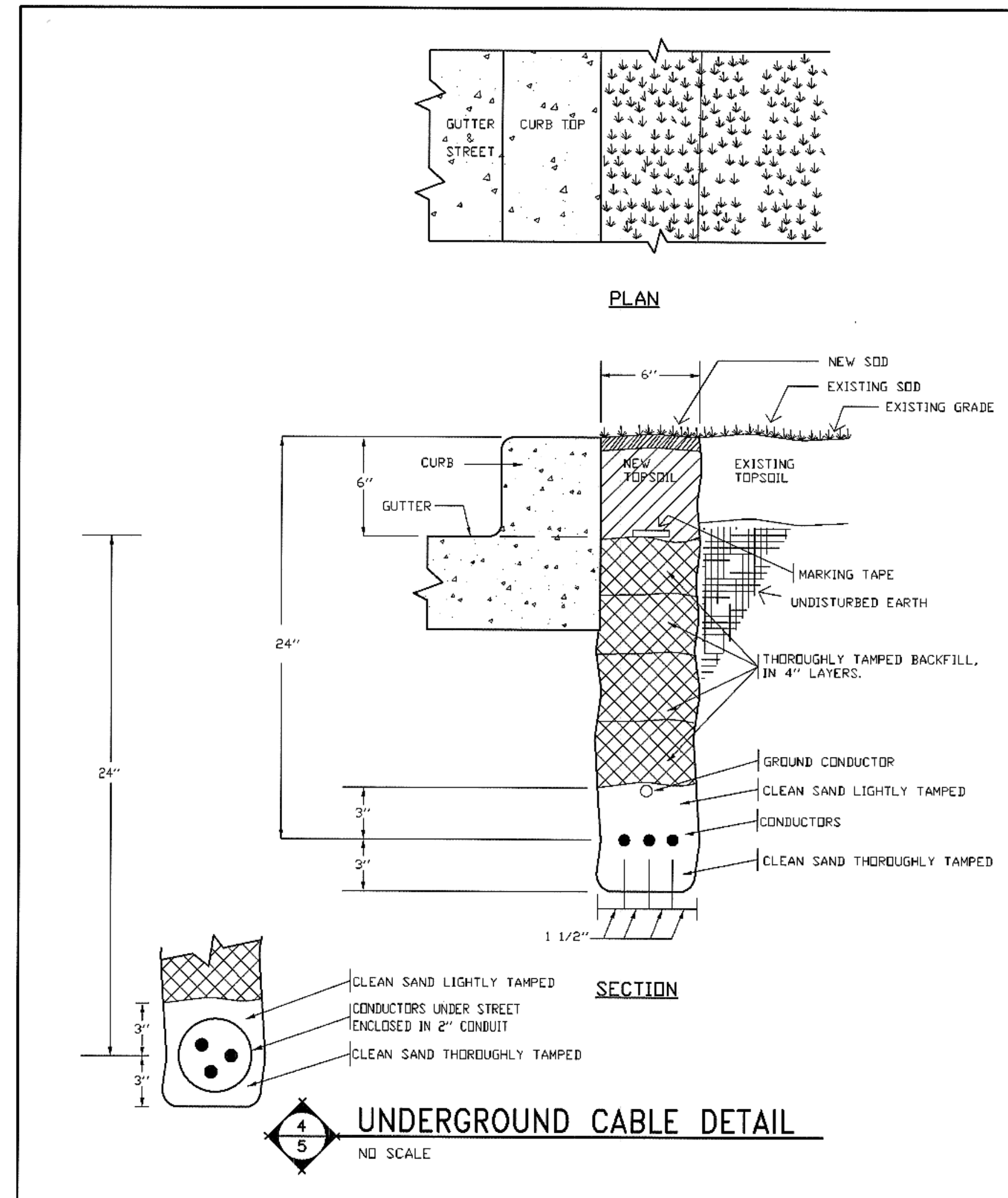
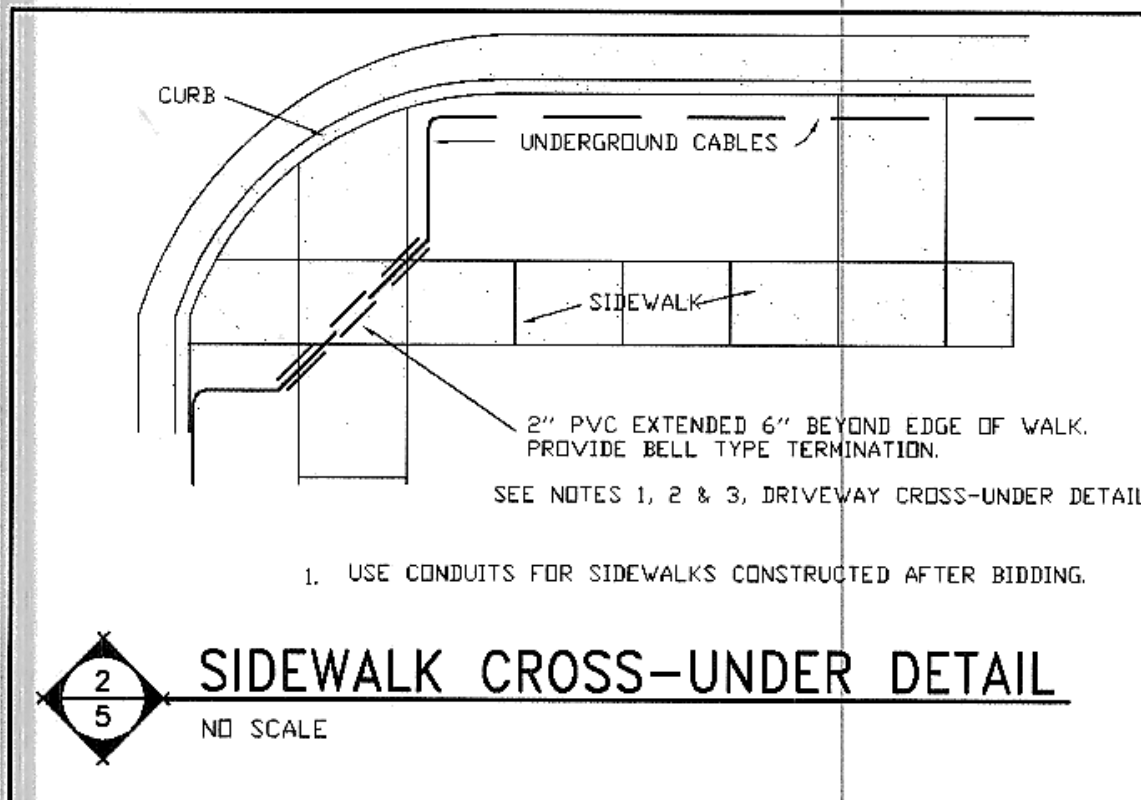
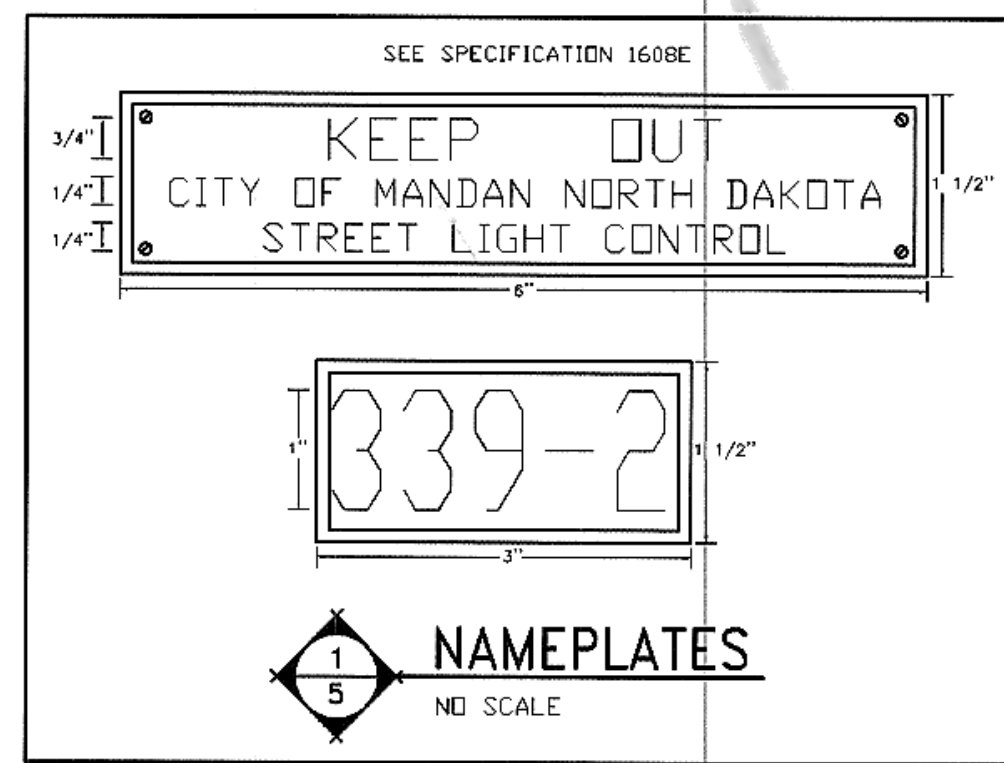


40TH AVENUE SE
 FROM THE NORTH ADDITION LINE TO
 THE SOUTH ADDITION LINE
 STREET IMPROVEMENT PROJECT 2003-13
 DISTRICT #117 AREA G SH. NO. 3 OF 5
 MANDAN, ND MAY 22, 2003

WARRANTY/ DISCLAIMER
 The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co. personnel inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR
 In accordance with generally accepted construction practices the contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

NOTICE TO CONTRACTOR
 The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locates shall be requested by using the "One Call" number 1-800-785-0555.



03550

SWENSON, HAGEN & CO. P.C.
 PLANNING CIVIL ENGINEERING SURVEYING
 SITE DESIGN CONSTRUCTION MANAGEMENT
 949 EASTIN AVE. P.O. BOX 1185 (701) 233-2600
 BISMARCK, N.D. 58504 FAX (701) 233-2806
 E-mail: sheng@tigate.com

Lakewood Commercial 2nd Addition
 STREET LIGHTING PLAN

STREET IMPROVEMENT PROJECT 2003-13
 DISTRICT # 117 AREA "G" SHEET 5 OF 5
 MANDAN, ND APRIL 30, 2003

DESIGN: JJB DRAFT: JJB