OCCIDENTAL CHEMICAL CORPORATION

OLIN CORPORATION

ENGINEERING REPORT

FINAL

VOLUME IV

APPENDIX C

DRAWINGS

102nd STREET LANDFILL SITE

NIAGARA FALLS, NEW YORK

SEPTEMBER 9, 1995

FLUOR DANIEL, INC.

MARLTON, NEW JERSEY

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REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE
A	07/29/93	ENDANGERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTC	DRK		
B	9/8/95	FINAL ENDANGERING REPORT (DRAFT SUBMITTAL)				

REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.

REFERENCE DRAWINGS | DWG. NO.

REFERENCE DRAWINGS | DWG. NO.

MANUAL CHANGES MADE - YES ☐ NO ☐ | DWG. FILE UPDATED - YES ☐ NO ☐ | MODEL UPDATED - YES ☐ NO ☐ | CADD DRAWING No. 1021001 | 1-25-93

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FLUOR DANIEL

DESIGNED BY: T. SZYMONIAK/J. GERVAIS
DRAWN BY: J. GERVAIS
CHECKED BY: R. MARGUCCIO
PROJECT MANAGER: J. GERVAIS
SUPERVISOR: APPROVED
LEAD DISCIPLINE: APPROVED
CLIENT: APPROVED
SCALE: 1"=80'
DRAWING NUMBER: 594000-100-01
REV. B

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

STAGE 1 - CONSTRUCTION SEQUENCE
EROSION & SEDIMENT CONTROL

DIST. CODE | WBK. PKG. | SUB-CONTRACT PKG.

NOT FOR CONSTRUCTION

0 80 160 FT.

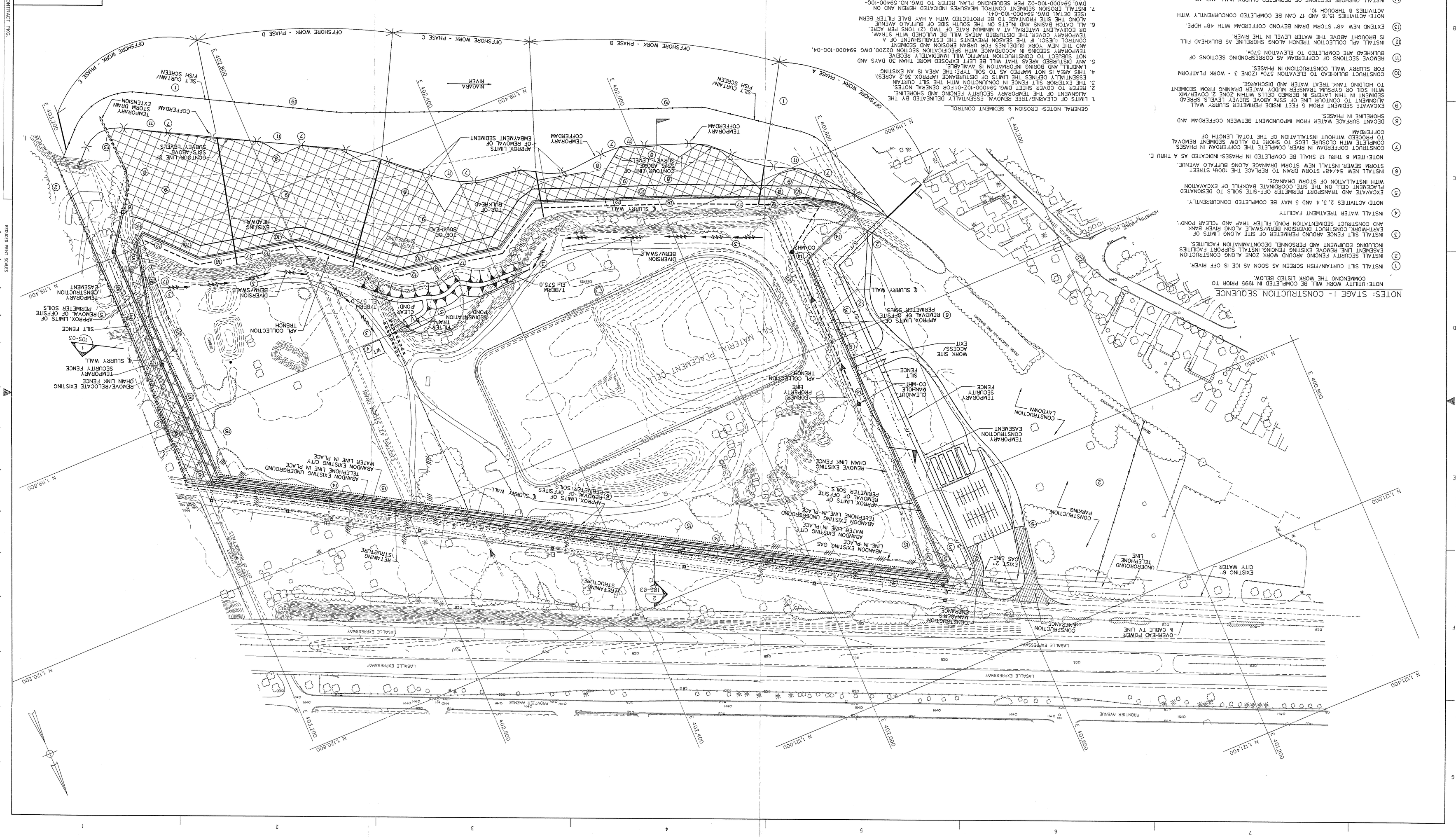
NOTES: STAGE 1 - CONSTRUCTION SEQUENCE

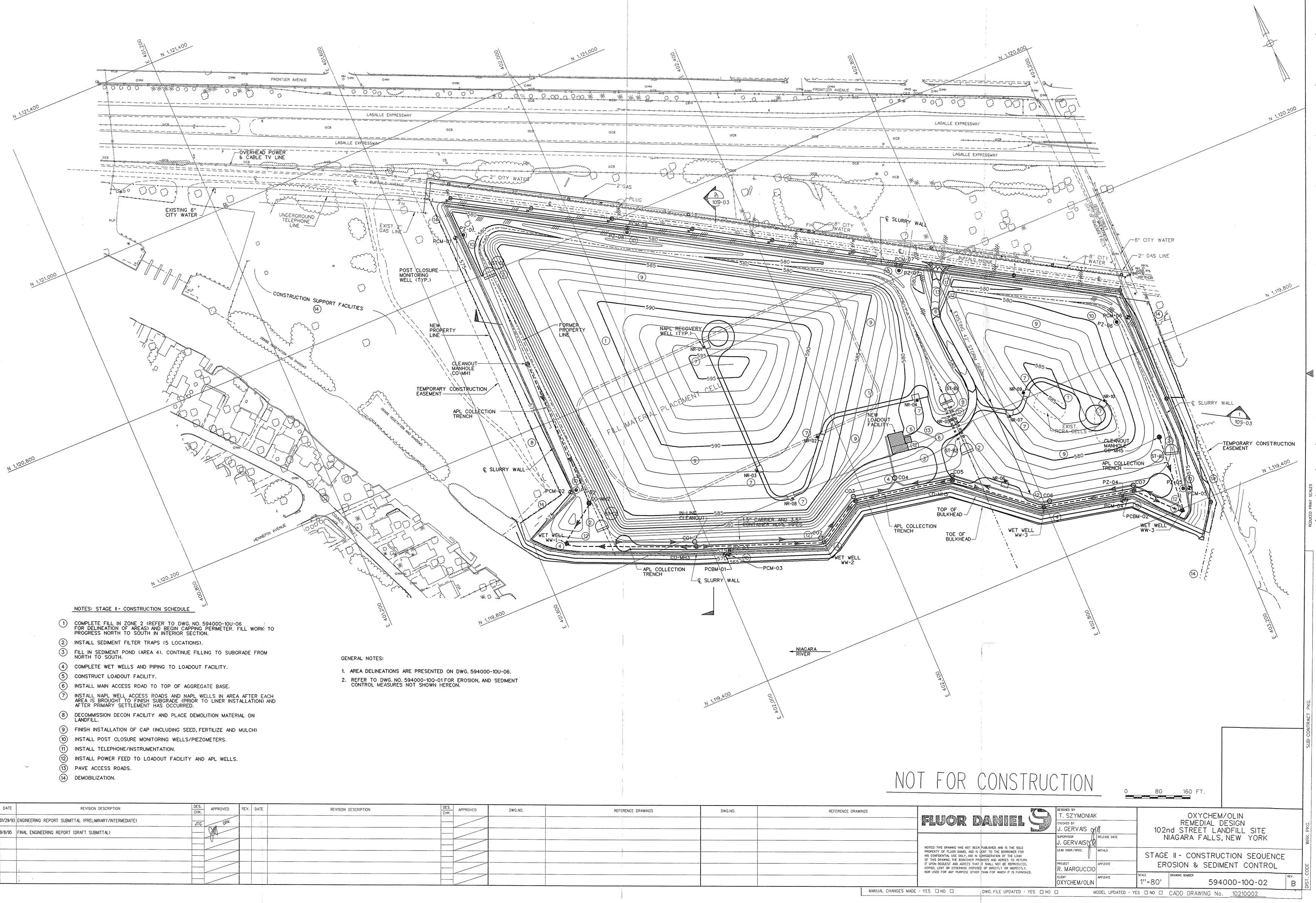
NOTE: UTILITY WORK WILL BE COMPLETED IN 1995 PRIOR TO COMMENCING THE WORK LISTED BELOW.

1. INSTALL SILT CURTAIN/FISH SCREEN AS SOON AS ICE IS OFF RIVER.
2. INSTALL SECURITY FENCING AROUND WORK ZONE ALONG CONSTRUCTION EASEMENT LINE, REMOVE EXISTING FENCING, INSTALL SUPPORT FACILITIES INCLUDING EQUIPMENT AND PERSONNEL DECONTAMINATION FACILITIES.
3. INSTALL SILT FENCE AROUND PERIMETER OF SITE ALONG LIMITS OF EARTHWORK, CONSTRUCT DIVERSION BERM/SWALE ALONG RIVER BANK AND CONSTRUCT SEDIMENTATION POND, FILTER TRAP AND "CLEAR POND".
4. INSTALL WATER TREATMENT FACILITY
5. NOTE: ACTIVITIES 2,3,4 AND 5 MAY BE COMPLETED CONCURRENTLY.
6. EXCAVATE AND TRANSPORT PERIMETER OFF-SITE SOILS TO DESIGNATED PLACEMENT CELL ON THE SITE COORDINATE BACKFILL OF EXCAVATION WITH INSTALLATION OF STORM DRAINAGE.
7. INSTALL NEW 54/48" STORM DRAIN TO REPLACE THE 100th STREET STORM SEWER. INSTALL NEW STORM DRAINAGE ALONG BUFFALO AVENUE.
8. NOTE: ITEM 8 THRU 12 SHALL BE COMPLETED IN PHASES: INDICATED AS 1 THRU E.
9. CONSTRUCT COFFERDAM IN PHASES. COMPLETE THE COFFERDAM IN PHASES COMPLETE WITH CLOSURE LEGS TO SHORE TO ALLOW SEDIMENT REMOVAL TO PROCEED WITHOUT INSTALLATION OF THE TOTAL LENGTH OF COFFERDAM
10. DECANT SURFACE WATER FROM IMPOUNDMENT BETWEEN COFFERDAM AND SHORELINE IN PHASES.
11. EXCAVATE SEDIMENT FROM 5 FEET INSIDE PERIMETER SLURRY WALL ALIGNMENT IN THIN LAYERS IN BENCHED CELLS WITHIN ZONE 2. COVER/MIX SEDIMENT WITH SOIL OR CPS/SLM. TRANSFER MUDDY WATER DRAINING FROM SEDIMENT TO HOLDING TANK. TREAT WATER AND DISCHARGE.
12. CONSTRUCT BULKHEAD TO ELEVATION 570+ (ZONE 3 - WORK PLATFORM FOR SLURRY WALL CONSTRUCTION) IN PHASES.
13. REMOVE SECTIONS OF COFFERDAM AS CORRESPONDING SECTIONS OF BULKHEAD ARE COMPLETED TO ELEVATION 570+.
14. INSTALL APL COLLECTION TRENCH ALONG SHORELINE AS BULKHEAD FILL IS BROUGHT ABOVE THE WATER LEVEL IN THE RIVER.
15. EXTEND NEW 48" STORM DRAIN BEYOND COFFERDAM WITH 48" HDPE.
16. NOTE: ACTIVITIES 15,16 AND 17 CAN BE COMPLETED CONCURRENTLY WITH ACTIVITIES 8 THROUGH 10.
17. INSTALL ONSHORE SECTIONS OF PERIMETER SLURRY WALL AND APL COLLECTION TRENCH.
18. INSTALL RETAINING WALL ALONG BUFFALO AVENUE. PLACE FILL AND FORM PERIMETER BERM IN ZONE 1. INSTALL CAPPING SYSTEM (LINER, DRAINAGE ZONE AND VEGETATION) IN EXTERIOR SLOPE OF BERM AND SEED.
19. INSTALL PERMANENT FENCE ALONG BUFFALO AVENUE.
20. INSTALL OFFSHORE SECTION OF PERMANENT SLURRY WALL.
21. COMPLETE BULKHEAD (AREA 5) TO FINISH GRADE AND PLACE RIPRAP ON FACE.
22. REMOVE SILT CURTAIN.

GENERAL NOTES: EROSION & SEDIMENT CONTROL

1. LIMITS OF CLEARING/TREE REMOVAL ESSENTIALLY DELINEATED BY THE ALIGNMENT OF THE TEMPORARY SECURITY FENCING AND SHORELINE.
2. REFER TO COVER SHEET DWG. 594000-102-01FOR DETAILED NOTES.
3. THE EXTERIOR SILT FENCE IS CONJUNCTION WITH THE SILT CURTAIN ESSENTIALLY DEFINES THE LIMITS OF DISTURBANCE (APPROX. 36.2 ACRES).
4. THIS AREA IS NOT MAPPED AS TO SOIL TYPE; THE AREA IS AN EXISTING LANDFILL AND BORING INFORMATION IS AVAILABLE.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING IN ACCORDANCE WITH SPECIFICATION SECTION 02200, DWG 594000-100-04.
6. ALL CATCH BASINS AND INLETS ON THE SOUTH SIDE OF BUFFALO AVENUE ALONG THE SITE FRONTAGE TO BE PROTECTED WITH A HAY BALE FILTER BERM (SEE DETAIL DWG. 594000-100-04).
7. INSTALL EROSION SEDIMENT CONTROL MEASURES INDICATED HEREIN AND ON DWG. 594000-100-02 PER SEQUENCING PLAN. REFER TO DWG. NO. 594000-100-04 FOR DETAILS AND SPECIFICATIONS.
8. MAINTENANCE OF ALL EROSION CONTROL MEASURES TO BE IN ACCORDANCE WITH THE NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (NYCESC).
9. THE ENTIRE FINAL SURFACE OF THE SITE OTHER THAN THOSE AREAS COVERED BY PERMANENT ROADWAYS AND STRUCTURES ARE TO BE PERMANENTLY SEEDED IN ACCORDANCE WITH SPECIFICATION SECTION 02200 AND AS NOTED ON DWG. 594000-100-04
10. ONE HUNDRED YEAR FLOOD ELEVATION IS 569 FEET NATIONAL GEODETIC VERTICAL DATUM (NGVD). REFER TO FEDERAL INSURANCE RATE MAP, CITY OF NIAGARA FALLS, N.Y. PANEL NO. 360508 0005 C).
11. PLEATED TRAPS SHALL BE CONSTRUCTED SIMILAR TO STORM OUTLET SEDIMENT TRAPS, AREA-5, 1-32 FEET, CREST EL.=573.0





NOTES: STAGE II - CONSTRUCTION SCHEDULE

1. COMPLETE FILL IN ZONE 2 (REFER TO DWG. NO. 594000-10U-06 FOR DELINEATION OF AREAS) AND BEGIN CAPPING PERIMETER. FILL WORK TO PROGRESS NORTH TO SOUTH IN INTERIOR SECTION.
2. INSTALL SEDIMENT FILTER TRAPS (5 LOCATIONS).
3. FILL IN SEDIMENT POND (AREA 4). CONTINUE FILLING TO SUBGRADE FROM NORTH TO SOUTH.
4. COMPLETE WET WELLS AND PIPING TO LOADOUT FACILITY.
5. CONSTRUCT LOADOUT FACILITY.
6. INSTALL MAIN ACCESS ROAD TO TOP OF AGGREGATE BASE.
7. INSTALL NAPL WELL ACCESS ROADS AND NAPL WELLS IN AREA AFTER EACH AREA IS BROUGHT TO FINISH SUBGRADE (PRIOR TO LINER INSTALLATION) AND AFTER PRIMARY SETTLEMENT HAS OCCURRED.
8. DECOMMISSION DECON FACILITY AND PLACE DEMOLITION MATERIAL ON LANDFILL.
9. FINISH INSTALLATION OF CAP (INCLUDING SEED, FERTILIZE AND MULCH)
10. INSTALL POST CLOSURE MONITORING WELLS/PIEZOMETERS.
11. INSTALL TELEPHONE/INSTRUMENTATION.
12. INSTALL POWER FEED TO LOADOUT FACILITY AND APL WELLS.
13. PAVE ACCESS ROADS.
14. DEMOBILIZATION.

GENERAL NOTES:

1. AREA DELINEATIONS ARE PRESENTED ON DWG. 594000-10U-06.
2. REFER TO DWG. NO. 594000-10Q-01 FOR EROSION, AND SEDIMENT CONTROL MEASURES NOT SHOWN HEREON.

NOT FOR CONSTRUCTION

0 80 160 FT.

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A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	DRK
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DWG.NO.	REFERENCE DRAWINGS

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DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
LEAD ENGR./SPEC.	
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN
RELEASE DATE	
INITIALS	
APP.DATE	
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

STAGE II - CONSTRUCTION SEQUENCE
EROSION & SEDIMENT CONTROL

SCALE	DRAWING NUMBER	REV.
1"=80'	594000-10Q-02	B

MANUAL CHANGES MADE - YES ☐ NO ☐ | DWG. FILE UPDATED - YES ☐ NO ☐ | MODEL UPDATED - YES ☐ NO ☐ | CADD DRAWING No. 10210002

SUB-CONTRACT PKG. | WORK PKG. | DIST. CODE

REDUCED PRINT SCALES | METRIC SCALES

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MATCH LINE - FOR CONTINUATION SEE DWG. 30K-02

FILL MATERIAL PLACEMENT CELL

APPROX. LIMITS OF REMOVAL OF OFFSITE PERIMETER SOILS

PROPERTY LINE

REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE, REFER TO NOTE 7

℄ SLURRY WALL

APL COLLECTION TRENCH SEE DETAIL DWG. 30K-08

POST CLOSURE MONITORING WELL (TYP.) SEE DETAIL DWG. 30K-06 PCM-02 N 1120020 E 401735

PIEZOMETER (TYP.) SEE DETAIL DWG. 30K-06 PZ-02 N 1120020 E 401750

PI N 1120006.8 E 401742.0

EXISTING ACCESS ROAD

S=0.5% MIN.

TRANSITION TO EXISTING

CLEANOUT MANHOLE (TYP.) SEE DETAIL DWG. 30K-08

CO-MH2 N 1119976.7 E 401767.4

NAPL RECOVERY WELL (TYP.) SEE DETAIL DWG. 30K-06 NR-03 N 1119890 E 402180

NR-02 N 1119910 E 402350

PI N 1119948.4 E 401598.6

END TRENCH BOT. OF TRENCH EL. 558.75

DEBRIS

APL COLLECTION TRENCH

IN-LINE CLEANOUT (TYP.) SEE DETAIL DWG. 30K-08 N 1119788.0 E 401969.3

CO3 N 1119739.8 E 402373.0

CO-MH4 N 1119728.8 E 402375.2

NR-08 N 1119800 E 402220

PI N 1119911.6 E 401630.9

WET WELL(TYP.) SEE DETAIL DWG. 30K-06 WW-1 N 1119905 E 401675

PI N 1119876.8 E 401688.7

℄ SLURRY WALL

TOP OF BULKHEAD REFER TO DETAIL DWG. 10U-05

TOE OF SLOPE

TRANSITION FROM TYPICAL TO BENCHED SLOPE

APPROXIMATE LIMITS OF REMOVAL OF EMBAYMENT SEDIMENTS

CONTOUR LINE OF SSI's ABOVE SURVEY LEVELS

1.5" CARRIER AND 3.5" CONTAINER HDPE PIPES

PI N 1119762.6 E 401952.0

CO-MH5 N 1119775.5 E 401968.0 HIGH POINT BEGIN TRENCH EL. 560.50

PCBM-01 N 1119730 E 402025

PCM-03 N 1119726 E 402035

PZ-03 N 1119735 E 402040

℄ SLURRY WALL, FOR DETAIL REFER TO DWG. 10S-02

CO2 N 1119676.1 E 402259.0

PI N 1119712.5 E 402373.4

TOE OF BULKHEAD

SILT CURTAIN/ FISH SCREEN

END TRENCH BOT. OF TRENCH EL. 558.75

WET WELL WW-2 N 1119663.1 E 402262.8

PI N 1119645.8 E 402263.1

COFFERDAM

APPROXIMATE LIMITS OF REMOVAL OF EMBAYMENT SEDIMENTS

NIAGARA RIVER

MAIN AVENUE

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-04

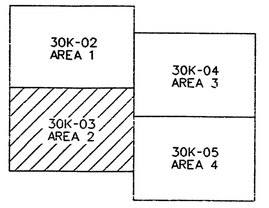
MATCH LINE - FOR CONTINUATION SEE DWG. 30K-05

N 1,120,200 | N 1,120,000 | N 1,119,800 | N 1,119,600 | N 1,119,400

E 401,200 | E 401,400 | E 401,600 | E 401,800 | E 402,000 | E 402,200 | E 402,400

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-10S-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL AND BULKHEAD.
2. REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
3. REFER TO DWG. NO. 594000-30K-06 FOR WET WELL, NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, POST CLOSURE BEDROCK MONITORING WELL, AND PIEZOMETER DETAILS.
4. REFER TO DRAWING 594000-30K-08 FOR CLEANOUT MANHOLE DETAIL, INLINE CLEANOUT DETAIL, AND APL COLLECTION TRENCH .
5. REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
6. REFER TO ENLARGED PLAN 594000-10U-03 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE ALIGNMENT, AREA 2.
7. REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.



DRAWING KEY PLAN

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY /INTERMEDIATE)	JTG	DRK
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		DRK

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DESIGNED BY	A. BUMB
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
LEAD ENGR./SPEC.	A. BUMB
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN

RELEASE DATE / INITIALS / APP.DATE 2/13/96 / APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN
AREA 2

SCALE 1" = 40' | DRAWING NUMBER 594000-30K-03 | REV. B

MANUAL CHANGES MADE - YES ☐ NO ☐ | DWG. FILE UPDATED - YES ☐ NO ☐ | MODEL UPDATED - YES ☐ NO ☐ | CADD DRAWING No. 10230K03

SUB-CONTRACT PKG. | WRK. PKG. | DIST. CODE

REDUCED PRINT SCALES

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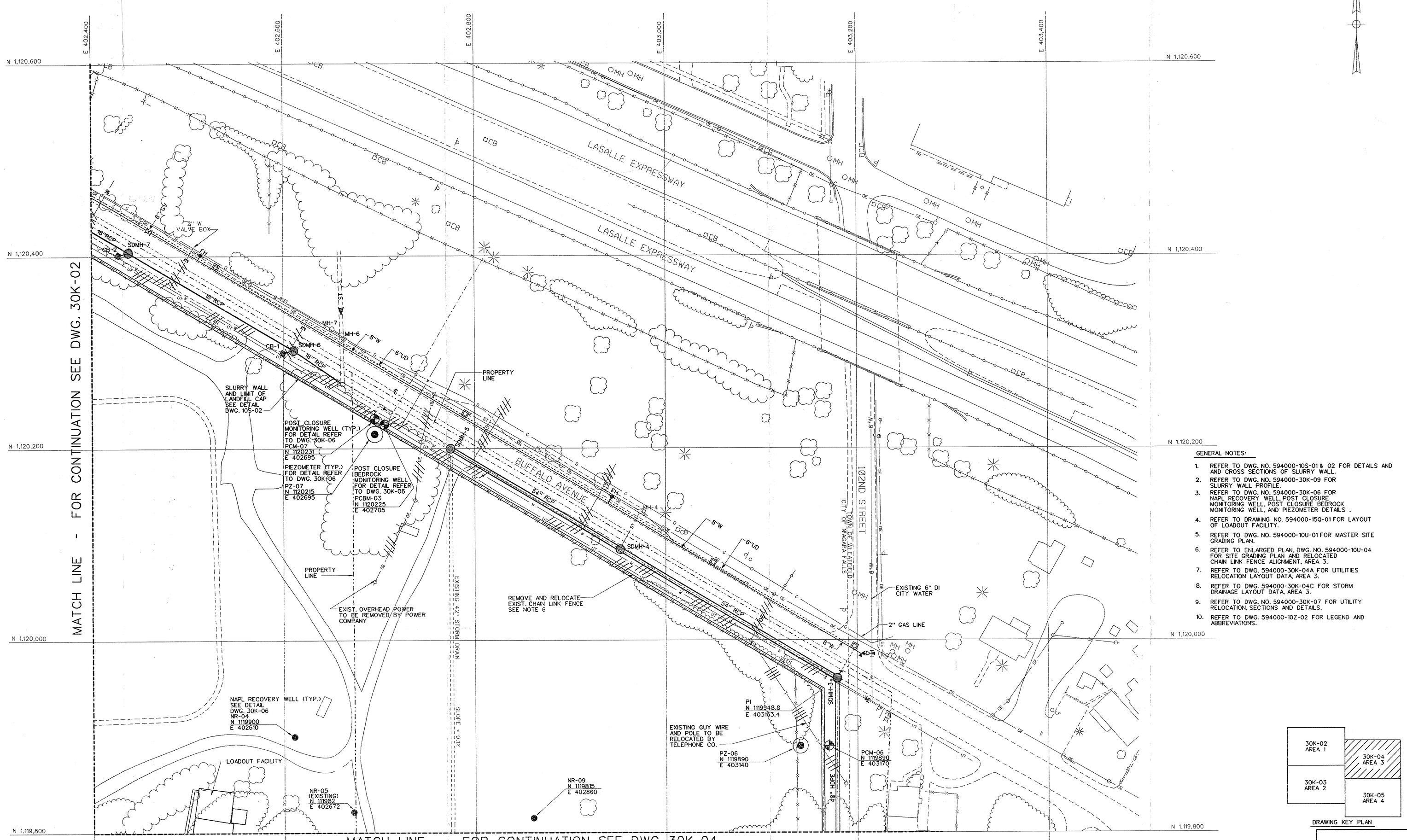

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-10S-01 & 02 FOR DETAILS AND AND CROSS SECTIONS OF SLURRY WALL.
2. REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
3. REFER TO DWG. NO. 594000-30K-06 FOR NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, POST CLOSURE BEDROCK MONITORING WELL, AND PIEZOMETER DETAILS .
4. REFER TO DRAWING NO. 594000-150-01 FOR LAYOUT OF LOADOUT FACILITY.
5. REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
6. REFER TO ENLARGED PLAN, DWG. NO. 594000-10U-04 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE ALIGNMENT, AREA 3.
7. REFER TO DWG. 594000-30K-04A FOR UTILITIES RELOCATION LAYOUT DATA, AREA 3.
8. REFER TO DWG. 594000-30K-04C FOR STORM DRAINAGE LAYOUT DATA, AREA 3.
9. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION, SECTIONS AND DETAILS.
10. REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.

DRAWING KEY PLAN

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY /INTERMEDIATE)	JTG	URK
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		URK

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DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

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DESIGNED BY	A. BUMB/U. KUMTHEKAR
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	A. BUMB
INITIALS	
PROJECT	R. MARGUCCIO
RELEASE	9/13/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN
AREA 3

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-04	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K04

REDUCED PRINT SCALES 1" = 40' 20' 0 20' 40' 80'

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

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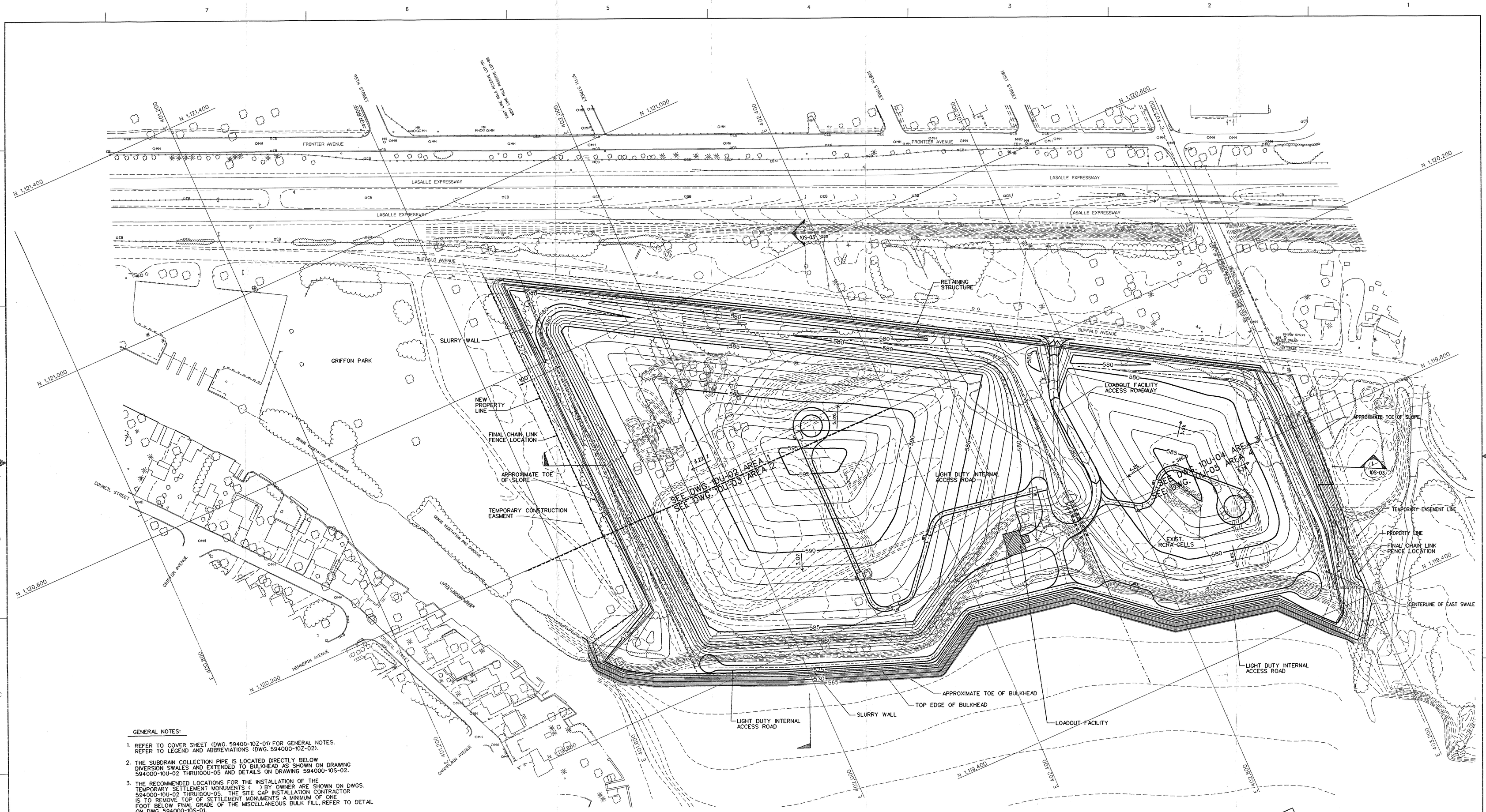

GENERAL NOTES:

1. REFER TO COVER SHEET (DWG. 59400-10Z-01) FOR GENERAL NOTES. REFER TO LEGEND AND ABBREVIATIONS (DWG. 594000-10Z-02).
2. THE SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW DIVERSION SWALES AND EXTENDED TO BULKHEAD AS SHOWN ON DRAWING 594000-10U-02 THRU10U-05 AND DETAILS ON DRAWING 594000-10S-02.
3. THE RECOMMENDED LOCATIONS FOR THE INSTALLATION OF THE TEMPORARY SETTLEMENT MONUMENTS ( ) BY OWNER ARE SHOWN ON DWGS. 594000-10U-02 THRU10U-05. THE SITE CAP INSTALLATION CONTRACTOR IS TO REMOVE TOP OF SETTLEMENT MONUMENTS A MINIMUM OF ONE FOOT BELOW FINAL GRADE OF THE MISCELLANEOUS BULK FILL. REFER TO DETAIL ON DWG. 594000-10S-01.
4. THE LIMIT OF THE TEMPORARY CONSTRUCTION EASEMENT ALONG BUFFALO AVENUE SHALL BE THE SOUTHERN EDGE OF PAVEMENT OF BUFFALO AVENUE.
5. THIS DRAWING REPRESENTS FINAL GRADING AND FENCE LINE AFTER THE REMEDIATION OF 102nd STREET LANDFILL SITE.
6. REFERENCE BENCH MARK USED: N22 (U.S.L.S.) ON THE NORTH SIDE OF BUFFALO AVENUE IN THE WEST WALL OF HOUSE NO. 9818, 9 FEET SOUTH OF THE NORTHWEST CORNER OF THE HOUSE, IN THE CONRETE WATER TABLE, ABOUT 2-1/2 FEET HIGHER THAN GROUND. THE HORIZONTAL LINE OF A CROSS ON THE UNITED STATES LAKE SURVEY STANDARD DISK SET VERTICALLY. (176.038 METERS OR 5.77.551FEET NGVD)

DRAWING KEY PLAN - ENLARGED DRAWINGS

10U-02 AREA 1 | 10U-04 AREA 3
10U-03 AREA 2 | 10U-05 AREA 4

0 80 160 FT.

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SUPERVISOR / RELEASE DATE	J. GERVAIS
LEAD ENGR./SPEC. / INITIALS	A.BUMB
PROJECT / DATE	R. MARGUCCIO 9/12/95
CLIENT / APP.DATE	OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

MASTER SITE GRADING PLAN

SCALE 1"=80' | DRAWING NUMBER 594000-10U-01 | REV. B

MANUAL CHANGES MADE - YES ☐ NO ☐ | DWG. FILE UPDATED - YES ☐ NO ☐ | MODEL UPDATED - YES ☐ NO ☐ | CADD DRAWING No. 10210U01

METRIC SCALES
REDUCED PRINT SCALES
SUB-CONTRACT PKG.
WRK PKG.
DST. CODE

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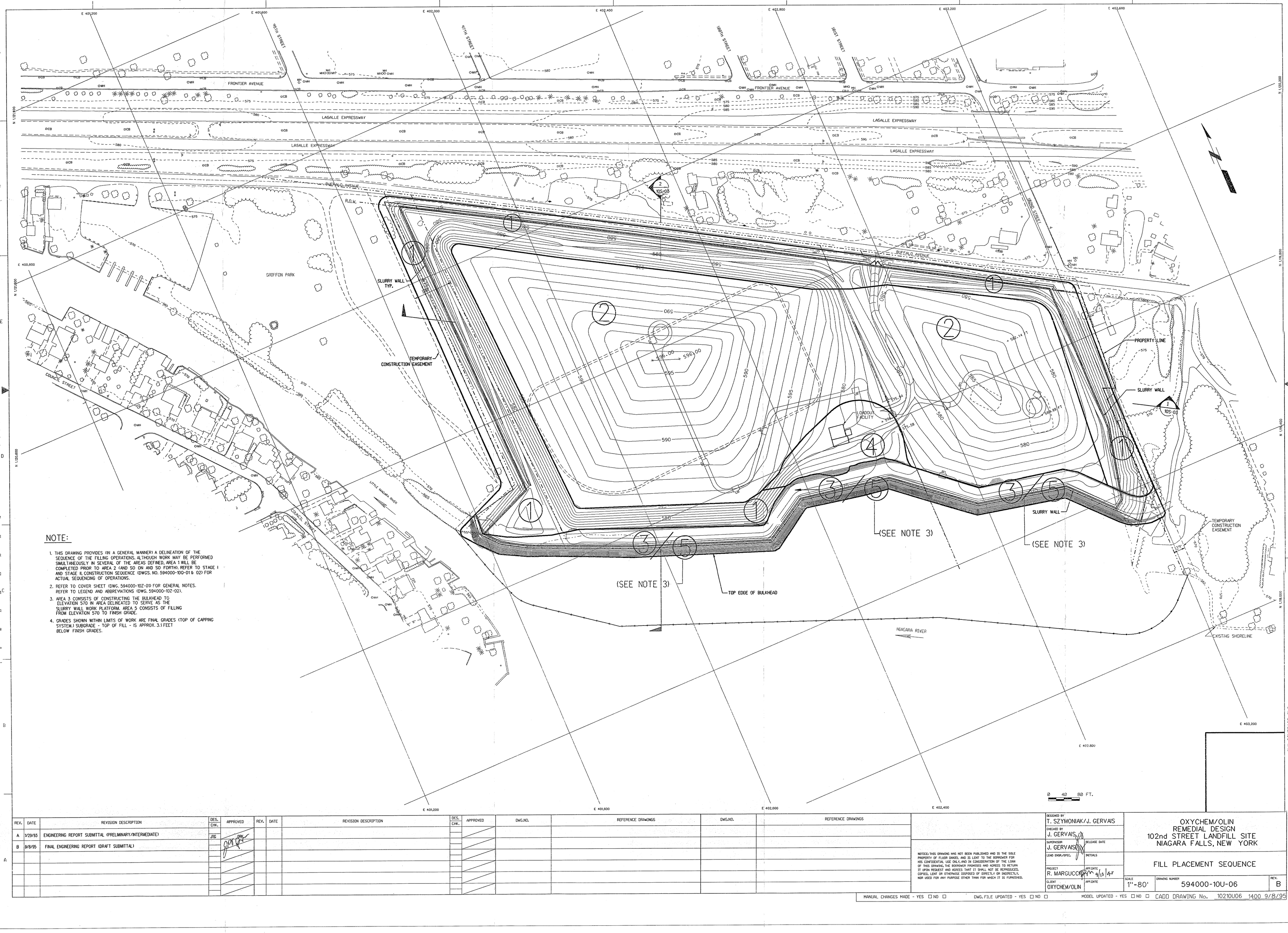
FRONTIER AVENUE
LASALLE EXPRESSWAY
BUFFALO AVENUE
R.O.W.
GRIFFON PARK
SLURRY WALL TYP.
TEMPORARY CONSTRUCTION EASEMENT
COUNCIL STREET
LITTLE NIAGARA RIVER
LOADOUT FACILITY
PROPERTY LINE
SLURRY WALL
(SEE NOTE 3)
TOP EDGE OF BULKHEAD
NIAGARA RIVER
EXISTING SHORELINE
JAMES STREET
E 401,200
E 401,600
E 402,000
E 402,400
E 402,800
E 403,200
E 403,600
N 1,120,600
N 1,120,800
N 1,121,000
N 1,121,200
N 1,121,400
N 1,121,600
N 1,121,800
N 1,122,000
N 1,122,200
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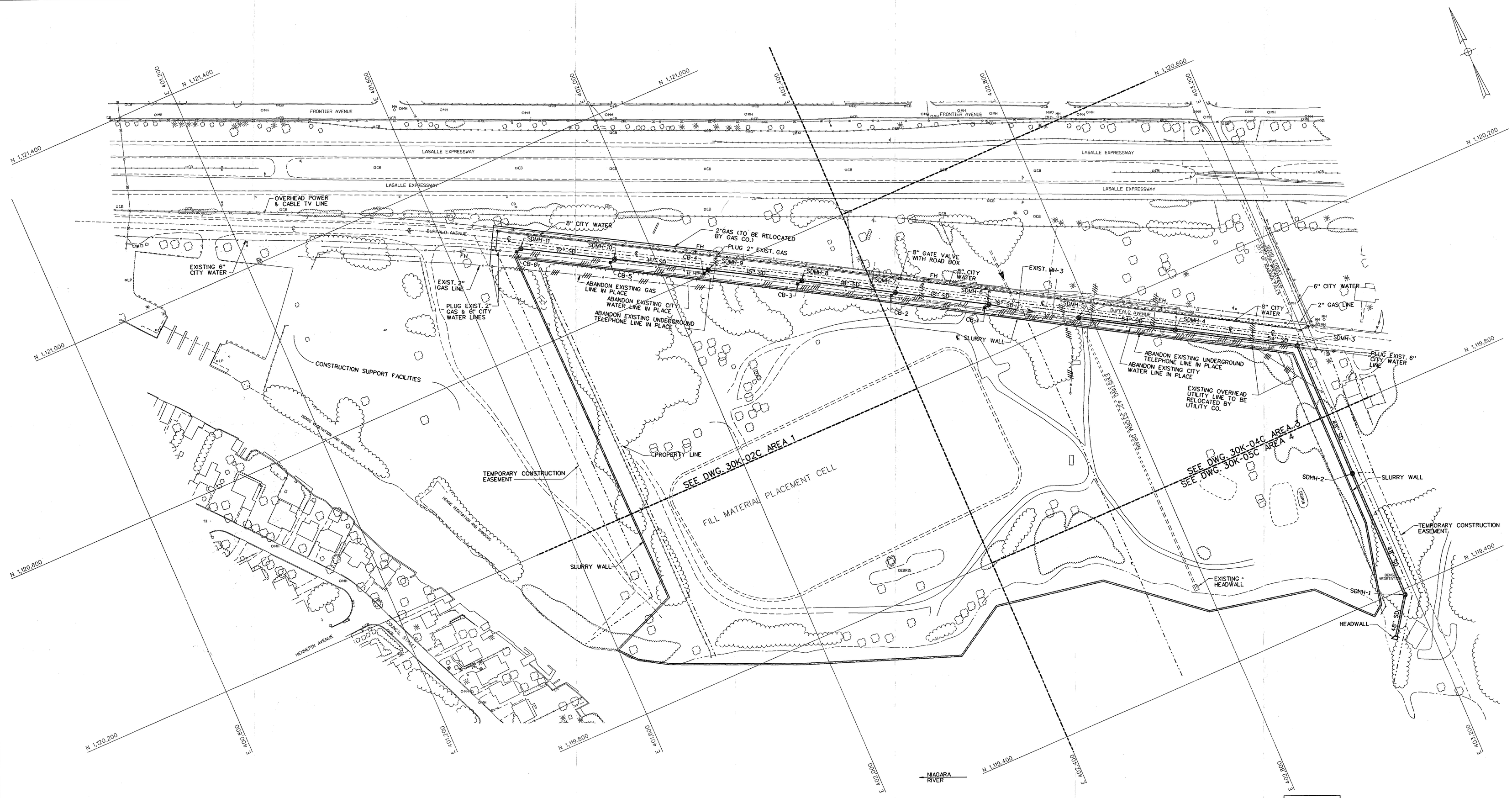
N 1,124,200
N 1,124,400
N



MONUMENT TABULATION
(BENCH MARKS)

NORTHWEST MONUMENT NYSPC NORTH 1,120,792.586
(NAD 27) EAST 401,761.139
ELEV. NGVD 1929 = 573.22

NORTHEAST MONUMENT NYSPC NORTH 1,119,965.911
(NAD 27) EAST 403,165.131
ELEV. NGVD 1929 = 574.86

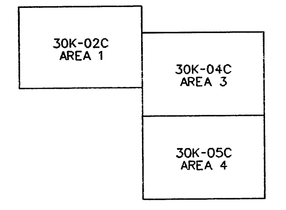
GENERAL NOTES:

1. REFER TO DWGS. 594000-30K-02C, 04C AND 05C FOR PLANS DEPICTING STORM DRAINAGE LAYOUT.
2. REFER TO DWGS. 594000-30K-13 AND 14 FOR STORM DRAINAGE DETAILS.
3. REFER TO DWG. 594000-30K-11 FOR TYPICAL SECTION-STORM DRAINAGE.
4. REFER TO DWG. 594000-10Z-02 FOR LEGEND & ABBREVIATIONS.

LIST OF EXISTING UTILITIES

UTILITY	OWNING UTILITY/AGENCY
1. CITY WATER	CITY OF NIAGARA FALLS, NEW YORK
2. GAS	NATIONAL FUEL GAS CORPORATION
3. TELEPHONE	NEW YORK TELEPHONE
4. POWER	NIAGARA MOHAWK POWER CORPORATION
5. CABLE TV	NIAGARA FRONTIER CABLE TELEVISION
6. STORM SEWER	CITY OF NIAGARA FALLS AND TOWN OF WHEATFIELD, NY

DRAWING KEY PLAN - ENLARGED DRAWINGS



0 80 160 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/29/94	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		JTG
0	3/15/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		JTG
1	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

DWG.NO.	REFERENCE DRAWINGS
594000-10Z-02	LEGEND AND ABBREVIATIONS

FLUOR DANIEL

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DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	
INITIALS	
PROJECT	R. MARGUCCIO 9/13/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

MASTER SITE REMEDIATION PLAN
STORM DRAINAGE

SCALE	DRAWING NUMBER	REV.
1"=80'	594000-30K-01C	1

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 1023K1C

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

REDUCED PRINT SCALES

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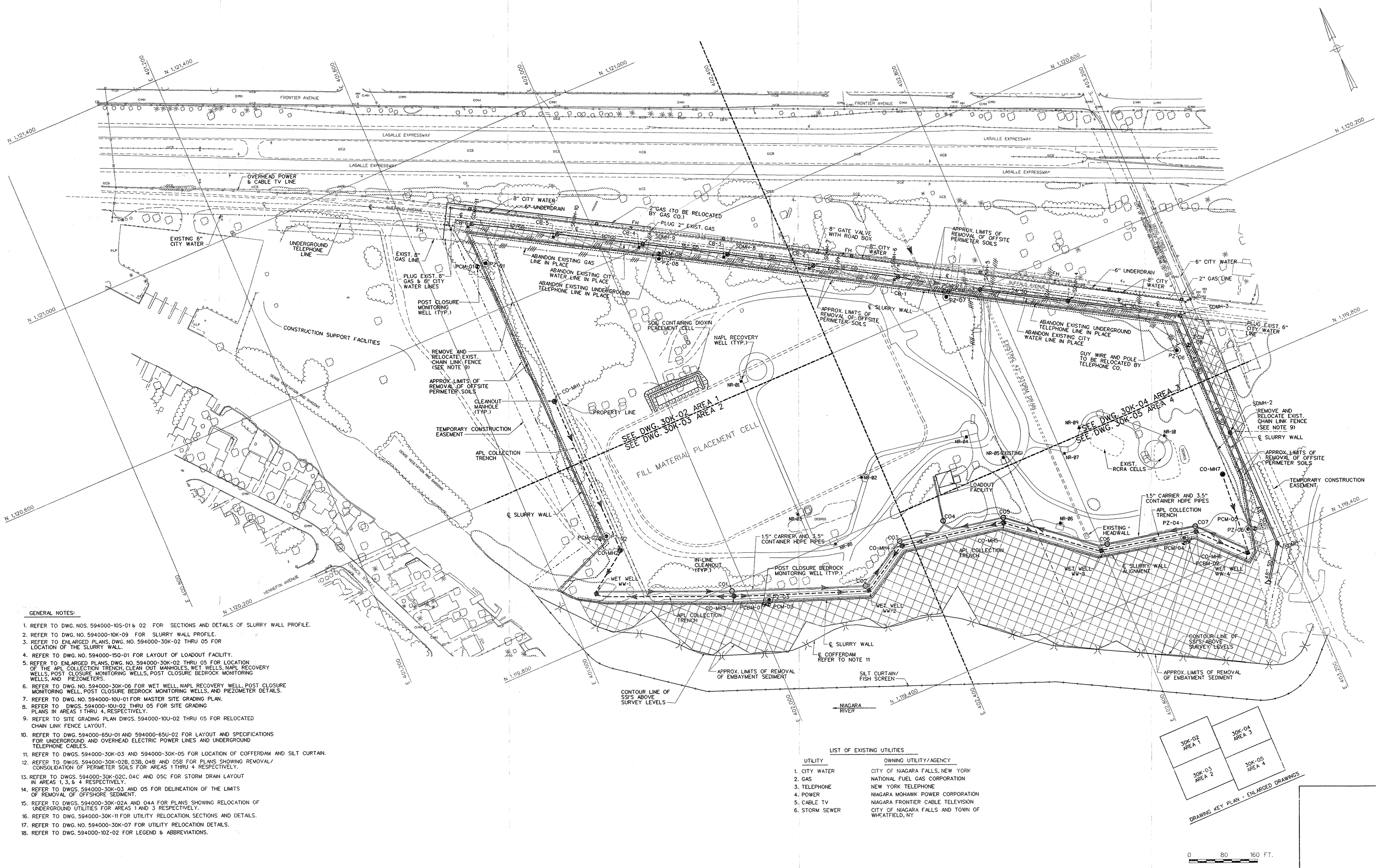

GENERAL NOTES:

1. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR SECTIONS AND DETAILS OF SLURRY WALL PROFILE.
2. REFER TO DWG. NO. 594000-10K-09 FOR SLURRY WALL PROFILE.
3. REFER TO ENLARGED PLANS, DWG. NO. 594000-30K-02 THRU 05 FOR LOCATION OF THE SLURRY WALL.
4. REFER TO DWG. NO. 594000-150-01 FOR LAYOUT OF LOADOUT FACILITY.
5. REFER TO ENLARGED PLANS, DWG. NO. 594000-30K-02 THRU 05 FOR LOCATION OF THE APL COLLECTION TRENCH, CLEAN OUT MANHOLES, WET WELLS, NAPL RECOVERY WELLS, POST CLOSURE MONITORING WELLS, POST CLOSURE BEDROCK MONITORING WELLS, AND PIEZOMETERS.
6. REFER TO DWG. NO. 594000-30K-06 FOR WET WELL, NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, POST CLOSURE BEDROCK MONITORING WELLS, AND PIEZOMETER DETAILS.
7. REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
8. REFER TO DWGS. 594000-10U-02 THRU 05 FOR SITE GRADING PLANS IN AREAS 1 THRU 4, RESPECTIVELY.
9. REFER TO SITE GRADING PLAN DWGS. 594000-10U-02 THRU 05 FOR RELOCATED CHAIN LINK FENCE LAYOUT.
10. REFER TO DWG. 594000-65U-01 AND 594000-65U-02 FOR LAYOUT AND SPECIFICATIONS FOR UNDERGROUND AND OVERHEAD ELECTRIC POWER LINES AND UNDERGROUND TELEPHONE CABLES.
11. REFER TO DWGS. 594000-30K-03 AND 594000-30K-05 FOR LOCATION OF COFFERDAM AND SILT CURTAIN.
12. REFER TO DWGS. 594000-30K-02B, 03B, 04B AND 05B FOR PLANS SHOWING REMOVAL/ CONSOLIDATION OF PERIMETER SOILS FOR AREAS 1 THRU 4 RESPECTIVELY.
13. REFER TO DWGS. 594000-30K-02C, 04C AND 05C FOR STORM DRAIN LAYOUT IN AREAS 1, 3, & 4 RESPECTIVELY.
14. REFER TO DWGS. 594000-30K-03 AND 05 FOR DELINEATION OF THE LIMITS OF REMOVAL OF OFFSHORE SEDIMENT.
15. REFER TO DWGS. 594000-30K-02A AND 04A FOR PLANS SHOWING RELOCATION OF UNDERGROUND UTILITIES FOR AREAS 1 AND 3 RESPECTIVELY.
16. REFER TO DWG. 594000-30K-11 FOR UTILITY RELOCATION, SECTIONS AND DETAILS.
17. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION DETAILS.
18. REFER TO DWG. 594000-10Z-02 FOR LEGEND & ABBREVIATIONS.

LIST OF EXISTING UTILITIES

UTILITY	OWNING UTILITY/AGENCY
1. CITY WATER	CITY OF NIAGARA FALLS, NEW YORK
2. GAS	NATIONAL FUEL GAS CORPORATION
3. TELEPHONE	NEW YORK TELEPHONE
4. POWER	NIAGARA MOHAWK POWER CORPORATION
5. CABLE TV	NIAGARA FRONTIER CABLE TELEVISION
6. STORM SEWER	CITY OF NIAGARA FALLS AND TOWN OF WHEATFIELD, NY

DRAWING KEY PLAN - ENLARGED DRAWINGS

0 80 160 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTC	DRK
B	6/3/94	DELETED CURTAIN WALL, ADDED OPTIONAL SLURRY WALL ALIGNMENT, ADDED NOTES 15 & 16 - ISSUED FOR REVIEW AND COMMENT-RELOCATION OF UNDERGROUND UTILITIES AND REMOVAL/CONSOLIDATION OF PERIMETER SOILS		
C	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	U. KUMTHEKAR/A. BUMB
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS — RELEASE DATE
LEAD ENGR/SPEC.	A. BUMB — INITIALS
PROJECT	R. MARGUCCIO — APPROVED 9/15/95
CLIENT	OXYCHEM/OLIN — APP. DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

MASTER SITE REMEDIATION PLAN

SCALE 1"=80' | DRAWING NUMBER 594000-30K-01 | REV. C

MANUAL CHANGES MADE - YES ☐ NO ☐ | DWG. FILE UPDATED - YES ☐ NO ☐ | MODEL UPDATED - YES ☐ NO ☐ | CADD DRAWING No. 10230K01

DIST. CODE | WRK. PKG. | SUB. CONTRACT PKG.

REDUCED PRINT SCALES

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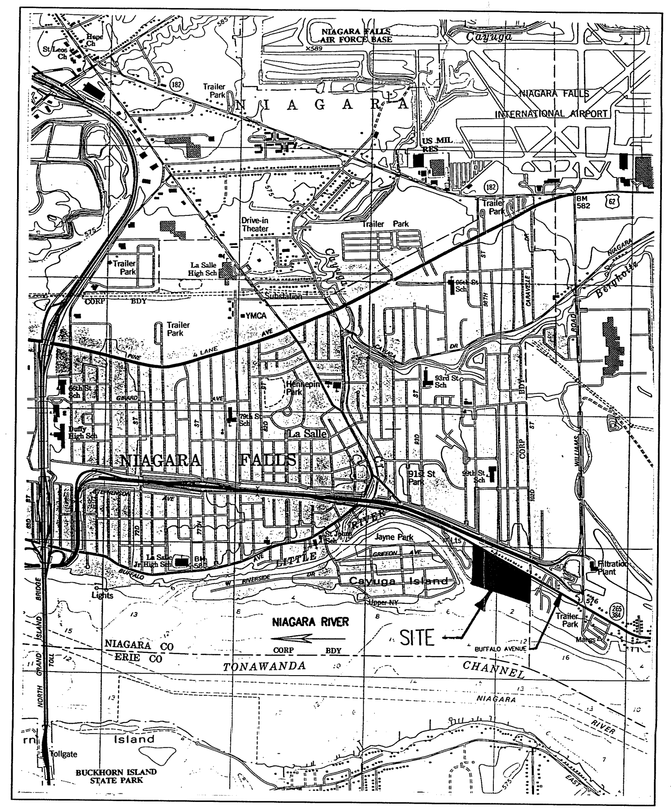
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK


NIAGARA FALLS AIR FORCE BASE
Cayuga
NIAGARA
NIAGARA FALLS INTERNATIONAL AIRPORT
Trailer Park
Drive-In Theater
YMCA
La Salle High Sch.
La Salle
NIAGARA FALLS
Memorial Hosp.
Cayuga
LaSalle
Island
Bridge
Bridge
Bridge

ABBREVIATIONS

@	AT
&	AND
304SS	304 STAINLESS STEEL
316SS	316 STAINLESS STEEL
AIT	ANALYZER INDICATING TRANSMITTER
ALT	ALTERNATE
APL	AQUEOUS PHASE LIQUID
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
℄	BASE LINE
BLDG	BUILDING
BM	BENCH MARK
BOT	BOTTOM
B/C	BOTTOM OF CURB
℄	CENTERLINE
CB	CATCH BASIN
CJ	CONTROL JOINT
CI	CURB INLET
CIP	CAST IRON PIPE
CLR	CLEAR
CO	CLEANOUT
CONC	CONCRETE
CONST JT	CONSTRUCTION JOINT
COORD	COORDINATE
DEPT	DEPARTMENT
DET	DETAIL
DI	DUCTILE IRON
DIA or ⌀	DIAMETER
DIP	DUCTILE IRON PIPE
DNG	DRAINING
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC
ET	ELECTRIC TRACING
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
℄	FLOW LINE
FI	FIBERGLASS REINFORCED PLASTIC
FB	FLAT BOTTOM
FIN FL EL	FINISHED FLOOR ELEVATION
FIN GR	FINISHED GRADE
FH	FIRE HYDRANT
FQI	FLOW TOTALIZER INDICATOR
FT	FEET
G	GAS
GCL	GEOSYNTHETIC CLAY LINER
GP	GUARD POST
GR	GUARDRAIL
HDPE	HIGH DENSITY POLYETHYLENE
HOA	HAND OFF AUTO
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HAND SWITCH
HW	HEADWALL

ID	INSIDE DIAMETER
IFC	ISSUED FOR CONSTRUCTION
IH	INSULATION
INFO	INFORMATION
IP	IRON PIN
INV	INVERT
INV EL (IE)	INVERT ELEVATION
JT	JOINT
L	LENGTH (OF CURVE)
LAH	LEVEL ALARM HIGH
LF	LINEAR FEET
LIT	LEVEL INDICATOR TRANSMITTER
LP	LIGHT POLE
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LSL	LEVEL SWITCH LOW
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
N	NORTH
NAPL	NON-AQUEOUS PHASE LIQUID
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929
(NIC)	NOT IN CONTRACT
# OR NO.	NUMBER
NTS	NOT TO SCALE
NYDOT	NEW YORK STATE DEPARTMENT OF TRANSPORTATION
OC	ON CENTER(S)
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
℞	PROPERTY LINE
PG	PRESSURE GAUGE
PI	POINT OF INTERSECTION
PSE	VACUUM/PRESSURE RELIEF VENT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QTY	QUANTITY
R; RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
REV	REVISION
REINF	REINFORCED
REQD	REQUIRED
R/W	RIGHT OF WAY
R.O.W.	RIGHT OF WAY

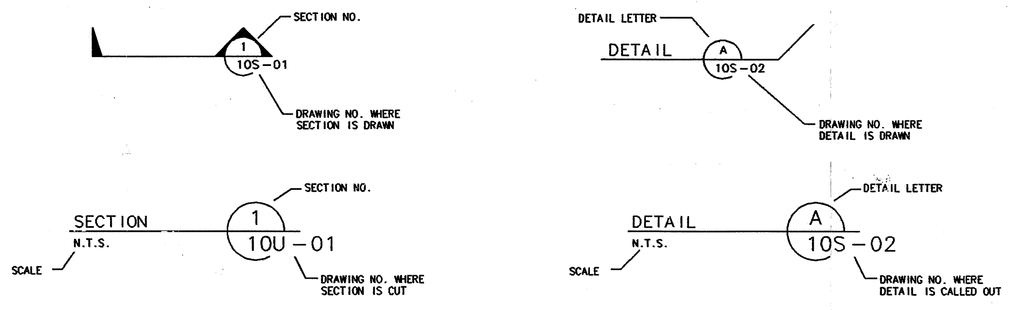
S	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN (NEW)
SDP	SUBDRAIN COLLECTION PIPE
SECT	SECTION
SHT	SHEET
SQ	SQUARE
SSI's	SITE SPECIFIC INDICATORS
ST	STORM DRAIN (EXISTING)
STA	STATION
STD	STANDARD
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
TBD	TO BE DETERMINED
T/C	TOP OF CURB
T/CONC.	TOP OF CONCRETE
T/G	TOP OF GRATE
THK	THICK(NESS)
TYP	TYPICAL
UD	UNDERDRAIN
UESC	NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VLDPE	VERY LOW DENSITY POLYETHYLENE
W	WEST
W/	WITH
WP	WORKING POINT
WWF	WELDED WIRE FABRIC
XA	REMOTE PHONE DIALER
XV	ON/OFF BALL VALVE
YD	YARD
ZS	POSITION SWITCH

P & ID LEGEND

- FLOW LINE
- ELECTRIC LINE
- FIELD MOUNTED INSTRUMENT
- GLOBE HAND VALVE
- BALL HAND VALVE
- CHECK VALVE
- INTERLOCK
- CENTRIFUGAL PUMP
- M — ELECTRIC MOTOR
- CONCENTRIC REDUCER / INCREASER
- SUBMERSIBLE PUMP
- FLANGE
- FLOW TOTALIZER INDICATOR
- REMOTE PHONE DIALER
- CONTROL PANEL MOUNTED INSTRUMENT
- H — HEAT TRACED AND INSULATE
- REMOVABLE ELECTRIC PANEL COIL HEATERS WITH REMOVABLE INSULATION
- CARBON FILTER
- VACUUM/PRESSURE RELIEF VENT

LEGEND

	EXISTING	NEW
APL COLLECTION TRENCH		
BUILDING		
CATCH BASIN	CB	CB
CITY WATER LINE	W	W
CLEANOUT	CO	CO
COFFERDAM ℄		
CONTOUR	340	340
DOUBLE WALL PIPE		
DRAINAGE FLOW		
EASEMENT (PERMANENT)		
EASEMENT (CONSTRUCTION)		
CHAIN LINK FENCE		
FIRE HYDRANT	FH	FH
FORMER EMBAYMENT AREA		
GAS LINE	G	G
GUARD POST	GP	GP
HEADWALL	HW	HW
100 YEAR FLOOD LIMIT		FL
IRON PIN	IP	
LEVEL SPREADER		
LIGHT POLE	LP	LP
MANHOLE		MH
MONUMENT	MON.	
NAPL RECOVERY WELL		NR-1
OVERHEAD ELECTRIC POWER & POLE	OE P OE	OE P OE
PIEZOMETER WELL		PZ-1
POST CLOSURE MONITORING WELL		PCM-01
POST CLOSURE BEDROCK MONITORING WELL		PCBM-01
PROPERTY LINE	℞	℞
RIGHT OF WAY		
RIVER LEVEL GAUGE		
SIGN		
SILT CURTAIN		
SILT FENCE		
SLOPE LINE		
STABILIZED CONSTRUCTION ENTRANCE (SYMBOL)		
SPOT ELEVATION	x 305.2	+ 325.5
STONE OUTLET SEDIMENT TRAP (SYMBOL)		
STORM DRAIN LINE	ST	SD
SUBDRAIN COLLECTION PIPE		SDP
SWALE		
TEMPORARY DIVERSION BERM & SWALE		
TEMPORARY SETTLEMENT MONUMENT		
TREE - CONIFEROUS		
TREE - DECIDUOUS		
TREE LINE		
TREE PROTECTION (TEMPORARY)		
UNDERGROUND INSTRUMENTATION LINE		UC
UNDERGROUND ELECTRIC POWER		UE
UNDERGROUND TELEPHONE LINE	UT	UT
VALVE	V	V
WATERSHED DRAINAGE DIVIDE		
WET WELL		



DETAILS AND SECTIONS CALLOUT SYMBOLOGY

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	DRK
B	03/15/95	ISSUED FOR REFERENCE		JTG
C	08/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	K. BARBER
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	J. GERVAIS
INITIALS	
PROJECT	R. MARZUCCO
APP.DATE	9/13/95
CLIENT	OXYCHEM / OLIN
APP.DATE	

OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LEGEND AND ABBREVIATIONS

SCALE	DRAWING NUMBER	REV.
NONE	594000-10Z-02	C

MANUAL CHANGES MADE - YES☐ NO☐ DWG. FILE UPDATED - YES☒ NO☐ MODEL UPDATED - YES☐ NO☐ CADD DRAWING No. 10210Z02 1-20-93

SUB-CONTRACT PKG.
VRK. PKG.
DIST. CODE

REDUCED PRINT SCALES
METRIC SCALES

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REV.	DATE	REVISION DESCRIPTION	APPROVED	DES. CHK.	REFERENCE DRAWINGS	DWG.NO.
A	9/26/92	ENGINEERING REPORT SUBMITTAL (PRELIMINARY INTERMEDIATE)	JTG DMK			
B	9/9/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)				

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210003

DIST. CODE | WRK. PKG. | SUB-CONTRACT PKG.

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

DRAINAGE DIVIDE PLAN

DRAWING NUMBER	REV.
594000-100-03	B

SCALE

DESIGNED BY: T. SZYMONIAK
CHECKED BY: J. GERVAIS
SUPERVISOR: J. GERVAIS
LEAD CADD/SPEC.: MINUS
RELEASE DATE
PROJECT: R. MARGUCCIO
APPROVED
CLIENT: OXYCHEM/OLIN
APPROVED

FLUOR DANIEL

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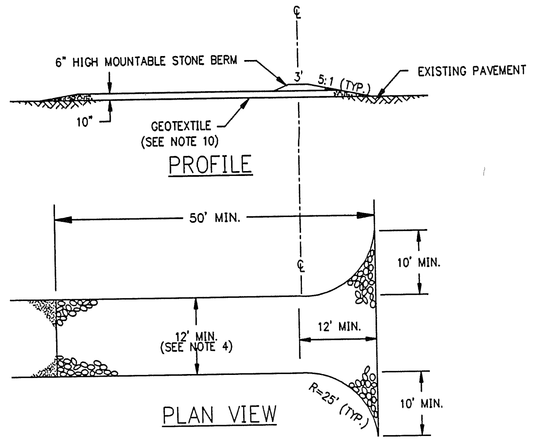
#	AREA ACRES	LONGEST OVERLAND	DISTANCE SWALE	SWALE	INTENSITY IN/HR	PEAK DISCHARGE CFS	VELOCITY FT/SEC	SWALE SLOPE PERCENT	SWALES DEPTH, FT
					10 YEAR STORM EVENT				
A1	3.0	200'	976	EAST	4.8	10.8	1.5	0.5	0.85
B1	7.4	150'	1270	CENTER	3.8	21.1	1.8	0.5	1.1
C1	5.2	150'	1210	WEST	4.0	14.8	1.6	0.5	0.95
D1	1.9	150'	-	-	6.0	8.9	-	-	-
D2	5.8	150'	-	-	6.0	26.1	-	-	-
E1	1.6	300'	-	NORTHWEST	-	4.8	1.5	0.4	0.93

0 80 160 FT.

A1=3.0 ACRES
B1=7.4 ACRES
C1 = 5.2 ACRES
D1=1.9 ACRES
D2=5.8 ACRES
E1=0.7 ACRES
LASALLE EXPRESSWAY
FRONTIER AVENUE
BUFFALO AVENUE
102nd STREET
CONDON STREET
EDGE VEGETATION AND WOODS
EDGE VEGETATION AND WOODS
EDGE VEGETATION AND WOODS

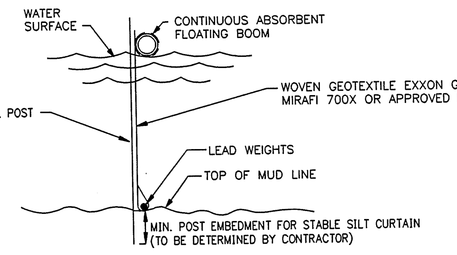


TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

CONSTRUCTION NOTES

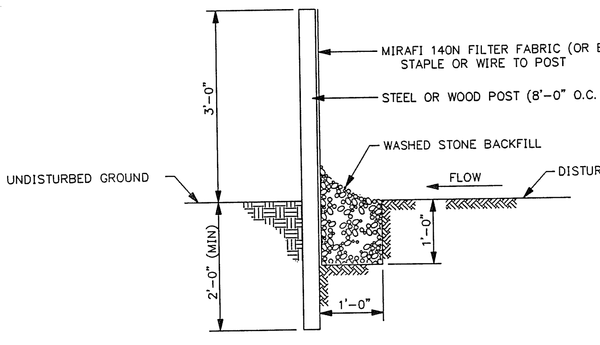
1. CONSTRUCT IN ACCORDANCE WITH THE NY GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
2. STONE SIZE – USE 2" STONE.
3. LENGTH – NOT LESS THAN 50 FEET.
4. THICKNESS – NOT LESS THAN TEN (10) INCHES.
5. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH PROVIDE FOR INGRESS OR EGRESS. TWENTY-FOUR (24) FOOT MIN. IF SINGLE ENTRANCE TO SITE.
6. THE GEOTEXTILE WILL BE PLACED OVER THE ENTRANCE AREA PRIOR TO PLACING OF STONE. THE GEOTEXTILE SHALL BE WOVEN FABRIC EQUIVALENT TO MIRAFI 600X OR NONWOVEN FABRIC EQUIVALENT TO TREVIRA SPUNBOUND 1135. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND MILDEW AND ROT RESISTANT.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



SILT CURTAIN DETAIL (RIVER)

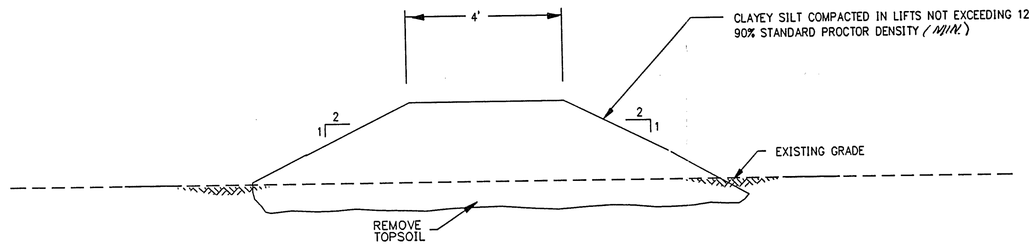
N.T.S.

1. THE SILT CURTAIN SHALL BE PROPERLY SECURED AND STAKED (MAXIMUN 4' SPACING) AT SUFFICIENT INTERVALS TO PREVENT MIGRATION OF SEDIMENTS.
2. INSTALLATION OF SILT CURTAIN TO WITHSTAND ANY ANTICIPATED AQUATIC VEGETATION INTERFERENCE, CURRENTS, AND WAVE ACTION DURING THE DURATION OF ITS USE.
3. MAINTAIN SILT CURTAIN UNTIL COFFERDAM IS REMOVED.
4. WATER DEPTH VARIES. REFER TO BATHYMETRIC SURVEY OF THE NIAGARA RIVER, 102nd STREET LANDFILL SITE, JULY, 1986.



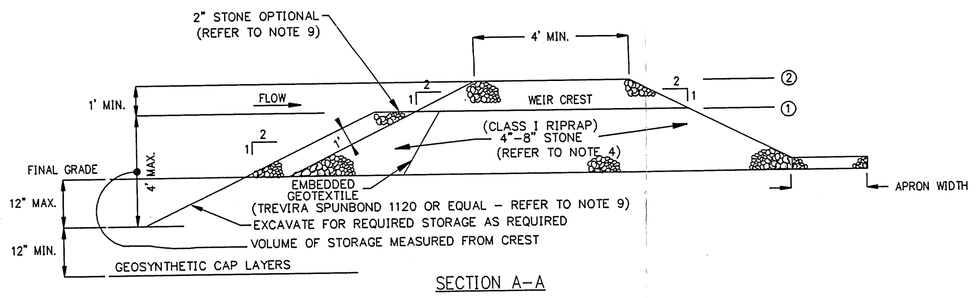
TYPICAL SILT FENCE DETAIL

N.T.S.

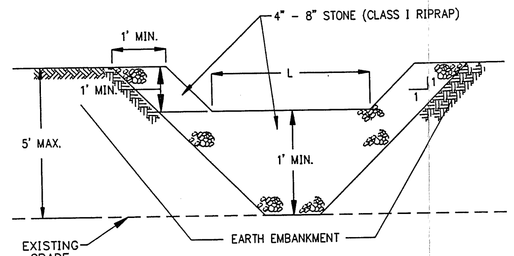


TYPICAL DIVERSION BERM/DIKE DETAIL

N.T.S.



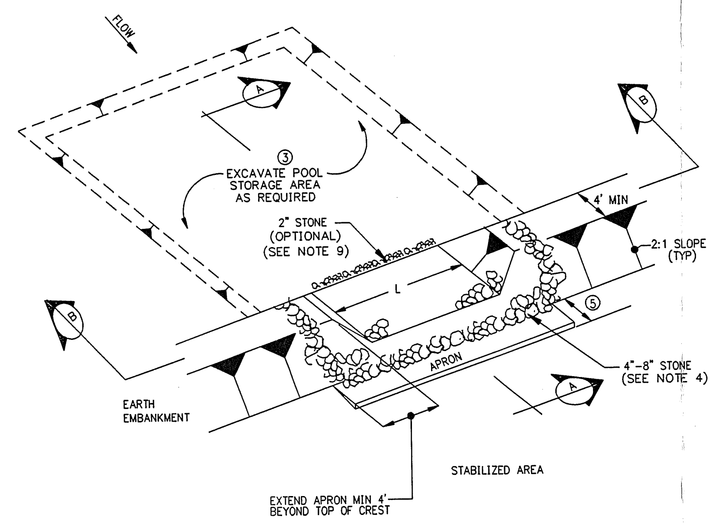
SECTION A–A



SECTION B–B PROFILE

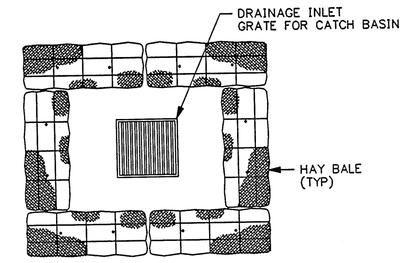
CONSTRUCTION NOTES FOR STONE OUTLET SEDIMENT TRAP

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE STRUCTURE SHALL BE CLASS 1 RIPRAP AS SPECIFIED IN SPEC SEC 02200 WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR PROVIDE AN EMBEDDED GEOTEXTILE IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSION WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH TO THE TRAP.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED WITH ESTABLISHED VEGETATION.
9. OPTION: A ONE FOOT LAYER OF 2" STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.
10. ADDITIONAL SEDIMENT TRAPS MAY BE USED UPSTREAM AND SIZED ACCORDINGLY TO CONTROL SMALLER WATERSHEDS.
11. FOR LOCATION OF STONE OUTLET SEDIMENT TRAPS, REFER TO DWG. 594000-10Q-01.

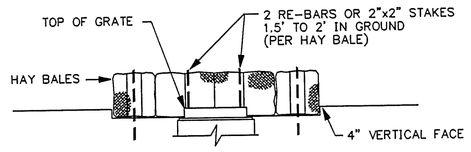


STONE OUTLET SEDIMENT TRAP DETAILS

N.T.S.



PLAN



SECTION

TYPICAL HAY BALE FILTER BERM – CATCH BASIN DETAIL

N.T.S.

PERMANENT SEEDING MIXTURE AND NOTES

SEED MIXTURE:

MIXTURE	RATE PER ACRE (LBS)	RATE PER 1,000 SQ.FT.(LBS)
BIRDSFOOT TREFOIL OR LADINO CLOVER	8	0.20
TALL FESCUE OR SMOOTH BROMEGRASS	20	0.45
REDTOP	2	0.05
TOTAL	30	0.70

INOCULATE WITH APPROPRIATE INOCULUM IMMEDIATELY PRIOR TO SEEDING. LADINO OR COMMON WHITE CLOVER MAY BE SUBSTITUTED FOR BIRDSFOOT TREFOIL AND SEEDED AT THE SAME RATE.

PERENNIAL RYEGRASS MAY BE SUBSTITUTED FOR THE REDTOP BUT INCREASE SEEDING RATE TO 5 LBS/ACRE (0.1 LB/1,000 SQ.FT.)

NOTES:

1. TIME OF PLANTING

   FALL PLANTING IS PREFERRED. SEED AFTER AUGUST 15. IN THE SPRING PLANT UNTIL MAY 15.

   IF SEEDING IS DONE BETWEEN MAY 15 AND AUGUST 15, IRRIGATION MAY BE NECESSARY TO INSURE A SUCCESSFUL SEEDING.

2. SITE PREPARATION
   - A. INSTALL NEEDED WATER AND EROSION CONTROL MEASURES AND BRING AREA TO BE SEEDED TO DESIRED GRADES.
   - B. TOPSOIL TO BE A MINIMUM OF 6" THICK. TOPSOIL MATERIAL AND INSTALLATION TO BE IN ACCORDANCE WITH THE NY GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
   - C. PREPARE SEEDBED LOOSENING SOIL TO A DEPTH OF 6 INCHES BY TILLING IMMEDIATELY BEFORE GRASS SEEDING TAKES PLACE TO PROMOTE GERMINATION AND INFILTRATION.
   - D. REMOVE ALL STONES OVER 1 INCH IN DIAMETER, STICKS AND FOREIGN MATTER FROM THE SURFACE.
   - E. LIME TO PH OF 6.5.
   - F. FERTILIZE AS REQUIRED IN ACCORDANCE WITH SOIL TEST ANALYSIS CONDUCTED BY AN INDEPENDENT SOIL TESTING LAB.
   - G. INCORPORATE LIME AND FERTILIZER IN TOP 2-4 INCHES OF TOPSOIL.
   - H. SMOOTH AND FIRM THE SEEDBED.
3. PLANTING

   USE A CULTIPACKER TYPE SEEDER IF POSSIBLE. SEED TO A DEPTH OF 1/8 TO 1/4 INCH. IF SEED IS TO BE BROADCAST, CULTIPACK OR ROLL AFTER SEEDING. IF HYDROSEEDED, LIME AND FERTILIZER MAY BE APPLIED THROUGH THE SEEDER AND ROLLING IS NOT PRACTICAL.
4. MULCHING

   MULCH ALL SEEDED AREAS IN ACCORDANCE WITH STANDARD AND SPECIFICATIONS FOR MULCHING ON PAGE 3.31 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
5. SELECT ADAPTED SEED VARIETIES FROM THE UESC GUIDELINES.
6. REPEAT FERTILIZING

   THREE TO FOUR WEEKS AFTER GERMINATION (SPRING SEEDINGS) APPLY 1 POUND NITROGEN/1,000 SQUARE FEET USING A COMPLETE FERTILIZER WITH A 2-1-1 OR 4-1-3 RATIO OR AS RECOMMENDED BY SOIL TEST RESULTS. SUMMER AND EARLY FALL SEEDINGS, APPLY AS ABOVE UNLESS AIR TERMPERATURES ARE ABOVE 85°F FOR EXTENDED PERIOD. WAIT UNTIL HEAT WAVE IS OVER TO FERTILIZE. LATER FALL/WINTER SEEDINGS, FERTILIZE IN SPRING.
7. RESTRICT USE

   NEW SEEDINGS SHOULD BE PROTECTED FROM USE FOR ONE FULL YEAR TO ALLOW DEVELOPMENT OF A DENSE SOD WITH GOOD ROOT STRUCTURE.
8. SWALES

   THE ABOVE SEED MIXTURE IS COMPATIBLE WITH WATERWAYS. SWALES AND OUTLETS SHALL BE PROTECTED AGAINST EROSION BY VEGETATIVE MEANS AS SOON AFTER CONSTRUCTION AS PRACTICAL. VEGETATION MUST BE WELL ESTABLISHED BEFORE DIVERSIONS OR OTHER CHANNELS ARE OUTLETTED INTO THEM. USE JUTE MATTING, EXCELSIOR MATTING, OR SODDING OF CHANNELS TO PROVIDE EROSION PROTECTION AS SOON AFTER CONSTRUCTION AS POSSIBLE.

   SWALE CENTERS OR CRUCIAL AREAS MAY BE SODDED. REFER TO THE STANDARD AND SPECIFICATION FOR STABILIZATION WITH SOD ON PAGE 3.35 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL. BE SURE SOD IS SECURELY ANCHORED USING STAPLES OR STAKES.
9. MAINTENANCE

   FERTILIZE, LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE VEGETATIVE COVER.

   SWALES SHALL NOT BE USED FOR ROADWAYS.

   IF RILLS DEVELOP IN THE BOTTOM OF A SWALE, PROMPT ATTENTION IS REQUIRED TO AVOID THE FORMATION OF GULLIES. EITHER HAY OR STRAW BALES, RIPRAP, EXCELSIOR OR FILTER FABRIC MAY BE USED DURING THE ESTABLISHMENT PHASE. SEE FIGURE 3.3, RILL MAINTENANCE MEASURES ON PAGE 3.27 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL. SPACING BETWEEN RILL MAINTENANCE BARRIERS SHALL NOT EXCEED 100 FEET.

STONE OUTLET SEDIMENT TRAP STORAGE VOLUME TABLE
(MIN. 1800 FT³ PER ACRE)

*SWALE	*WATERSHED AREA, ACRES	MINIMUM VOLUME, CU. YD.	MINIMUM OUTLET CREST LENGTH, L, FEET	CREST ELEVATION ①	EMBANK-MENT ELEV. ②	POOL AREA, FT² X DEPTH, FT. ③	DESIGN DEPTH OF SEDIMENT, FT. ④	APRON WIDTH, FT. ⑤
A1	3.0	200	12.5-18	576.5	578.0	5460	2.1	4.0
B1	6.0	402	30.0 36	578.0	579.0	10935	2.0	4.0
B2	1.4	100 94	9.0	577.0	578.0	2760	1.7	4.0
C1	2.0	347 134	21.0 12	576.5	577.5	3920	0.7	4.0
C2	3.2	214	12.0 19	579.5	580.5	5805	1.3	4.0

* REFER TO DWG. 594000-10Q-01 THROUGH 10Q-03

Revised 9/15 JTG

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	DRK
B	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR J. GERVAIS	RELEASE DATE
LEAD ENGR./SPEC.	INITIALS
PROJECT R. MARGUCCIO	APP.DATE
CLIENT OXYCHEM / OLIN	APP.DATE

OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

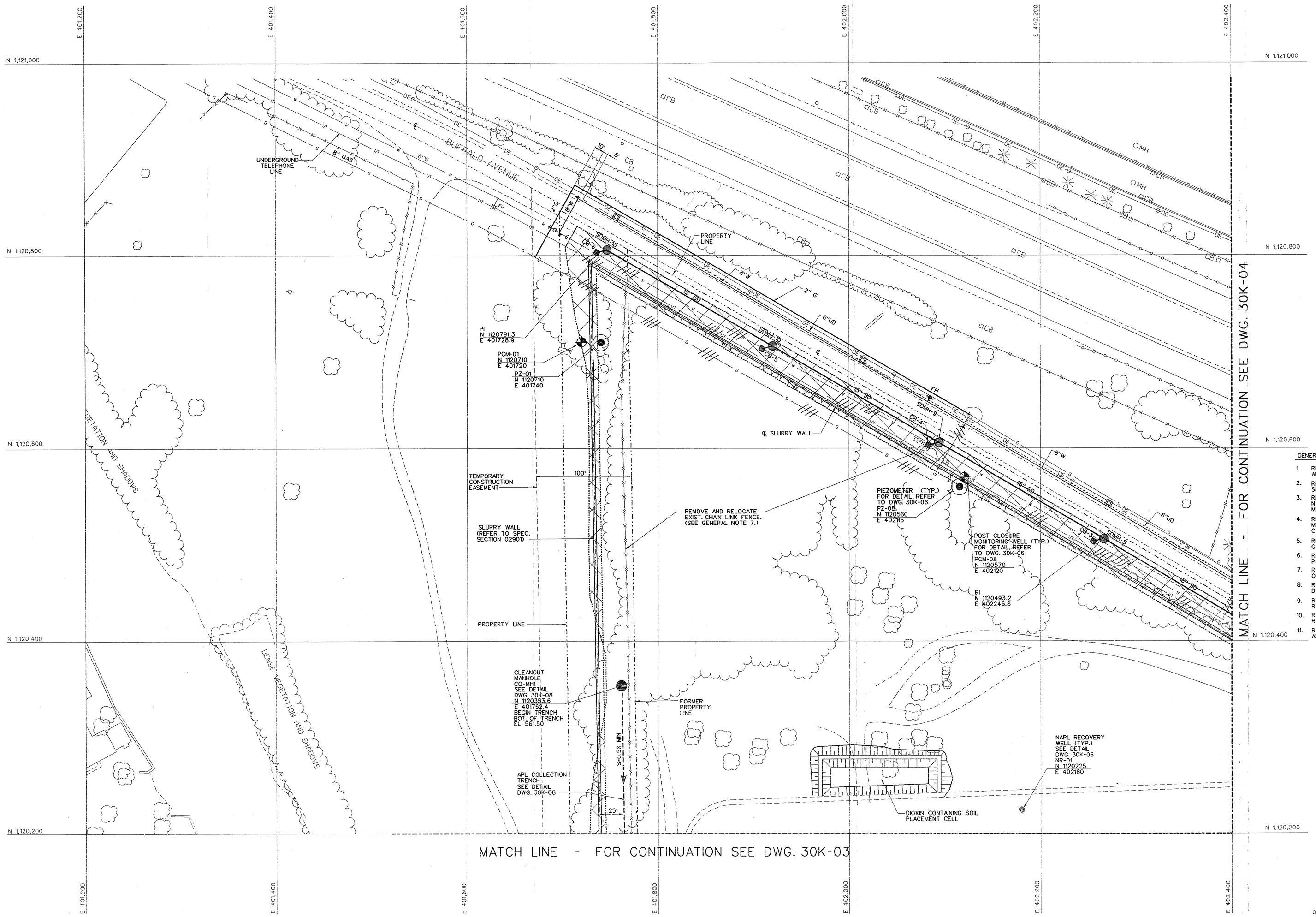
SOIL EROSION CONTROL DETAILS

SCALE	DRAWING NUMBER	REV.
AS NOTED	594000-10Q-04	B

MANUAL CHANGES MADE – YES ☐ NO ☐ DWG. FILE UPDATED – YES ☐ NO ☐ MODEL UPDATED – YES ☐ NO ☐ CADD DRAWING No. 10210Q04 9/07/95

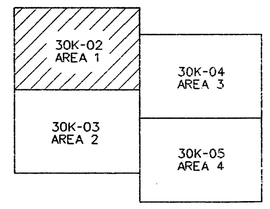
SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

REDUCED PRINT SCALES 3 METRIC SCALES



GENERAL NOTES:

1. REFER TO DWG. NO. 594000-10S-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL.
2. REFER TO DWG. NO. 594000-30K-09 FOR PROFILE OF SLURRY WALL.
3. REFER TO DWG. NO. 594000-30K-06 FOR NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL AND PIEZOMETER DETAILS.
4. REFER TO DRAWING 594000-30K-08 FOR CLEANOUT MANHOLE DETAIL, INLINE CLEANOUT DETAIL, AND APL COLLECTION TRENCH.
5. REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
6. REFER TO DWG. NO. 594000-10U-02 FOR SITE GRADING PLAN, AND RELOCATED CHAIN LINK FENCE LAYOUT.
7. REFER TO DWG. 594000-10Z-30K-2B FOR LIMITS OF REMOVAL OF OFFSITE PERIMETER SOILS, AREA 1.
8. REFER TO DWG. 594000-10Z-30K-2C FOR STORM DRAINAGE LAYOUT, AREA 1.
9. REFER TO DWG. NO. 594000-30K-2A FOR UTILITY RELOCATION LAYOUT DATA, AREA 1.
10. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION DETAILS.
11. REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.



DRAWING KEY PLAN

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)		JTG
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS
594000-30K-01	MASTER SITE REMEDIATION PLAN
594000-10U-01	MASTER SITE GRADING PLAN
594000-10U-02	SITE GRADING PLAN - AREA 1

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DESIGNED BY	A. BUMB/U. KUMTHEKAR	
CHECKED BY	J. GERVAIS	
SUPERVISOR	J. GERVAIS	RELEASE DATE
LEAD ENGR./SPEC.	A. BUMB	INITIALS
PROJECT	R. MARGUCCIO	APP. DATE 9/13/95
CLIENT	OXYCHEM/OLIN	APP. DATE

OXYCHEM/OLIN
REMEDIALDESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

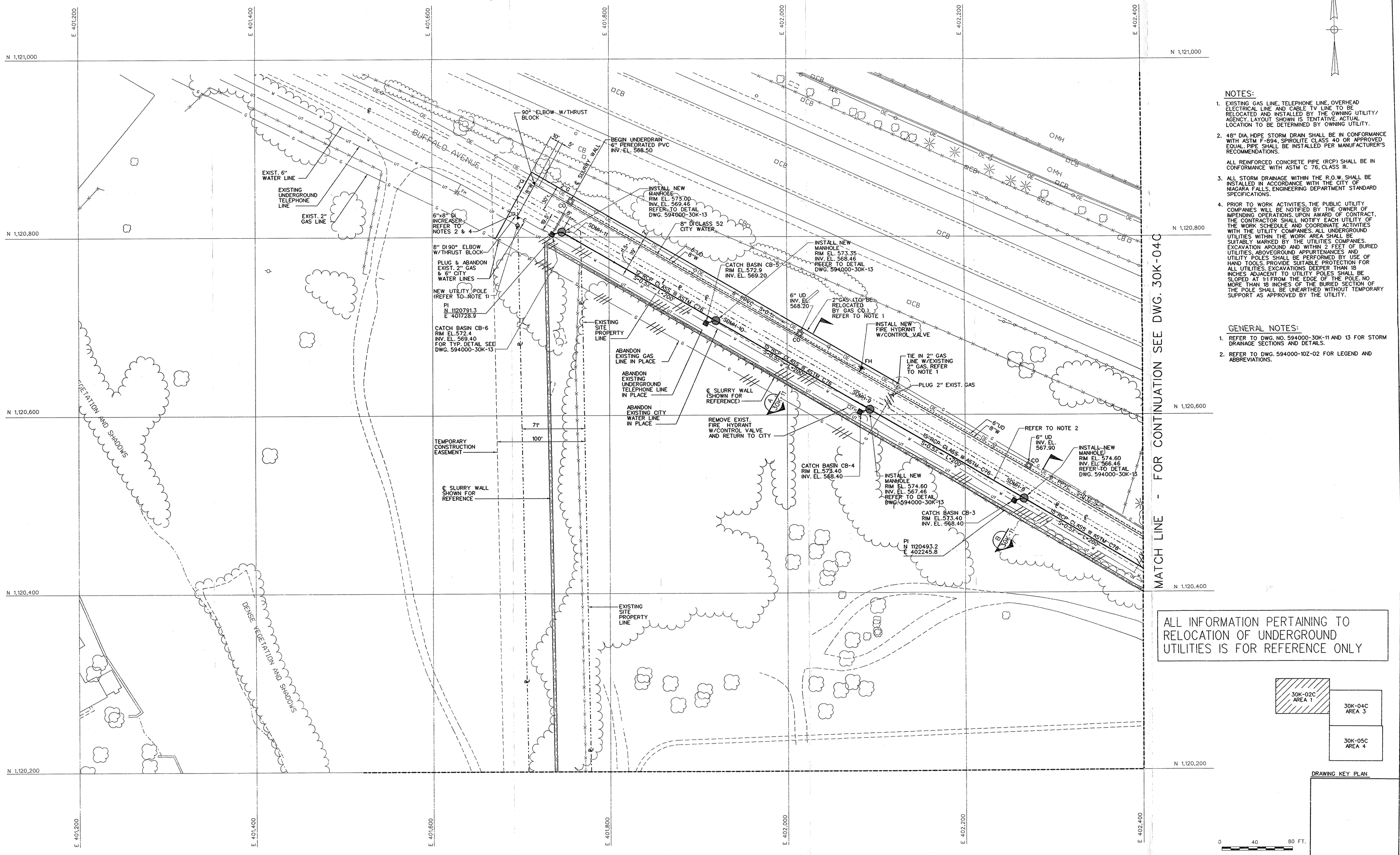
SITE REMEDIATION PLAN
AREA 1

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-02	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K02 9/07/95

REDUCED PRINT SCALES METRIC SCALES

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE



NOTES:

1. EXISTING GAS LINE, TELEPHONE LINE, OVERHEAD ELECTRICAL LINE AND CABLE TV LINE TO BE RELOCATED AND INSTALLED BY THE OWNING UTILITY/AGENCY. LAYOUT SHOWN IS TENTATIVE. ACTUAL LOCATION TO BE DETERMINED BY OWNING UTILITY.
2. 48" DIA. HDPE STORM DRAIN SHALL BE IN CONFORMANCE WITH ASTM F-894, SPIROLITE CLASS 40 OR APPROVED EQUAL. PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

   ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE IN CONFORMANCE WITH ASTM C 76, CLASS III.
3. ALL STORM DRAINAGE WITHIN THE R.O.W. SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF NIAGARA FALLS, ENGINEERING DEPARTMENT STANDARD SPECIFICATIONS.
4. PRIOR TO WORK ACTIVITIES, THE PUBLIC UTILITY COMPANIES WILL BE NOTIFIED BY THE OWNER OF IMPENDING OPERATIONS. UPON AWARD OF CONTRACT, THE CONTRACTOR SHALL NOTIFY EACH UTILITY OF THE WORK SCHEDULE AND COORDINATE ACTIVITIES WITH THE UTILITY COMPANIES. ALL UNDERGROUND UTILITIES WITHIN THE WORK AREA SHALL BE SUITABLY MARKED BY THE UTILITIES COMPANIES. EXCAVATION AROUND AND WITHIN 2 FEET OF BURIED UTILITIES, ABOVEGROUND APPURTENANCES AND UTILITY POLES SHALL BE PERFORMED BY USE OF HAND TOOLS. PROVIDE SUITABLE PROTECTION FOR ALL UTILITIES. EXCAVATIONS DEEPER THAN 18 INCHES ADJACENT TO UTILITY POLES SHALL BE SLOPED AT 1:1 FROM THE EDGE OF THE POLE. NO MORE THAN 18 INCHES OF THE BURIED SECTION OF THE POLE SHALL BE UNEARTHED WITHOUT TEMPORARY SUPPORT AS APPROVED BY THE UTILITY.

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-30K-11 AND 13 FOR STORM DRAINAGE SECTIONS AND DETAILS.
2. REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.

ALL INFORMATION PERTAINING TO RELOCATION OF UNDERGROUND UTILITIES IS FOR REFERENCE ONLY

DRAWING KEY PLAN

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/29/94	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		JTG
0	3/15/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		JTG
1	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		JTG RM

DWG.NO.	REFERENCE DRAWINGS
594000-10Z-02C	LEGEND AND ABBREVIATIONS

FLUOR DANIEL

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DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	
INITIALS	
PROJECT	R. MARGUCCIO 9/15/95
APP.DATE	
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN AREA 1
STORM DRAINAGE

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-02C	1

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K2C

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

REDUCED PRINT SCALES METRIC SCALES

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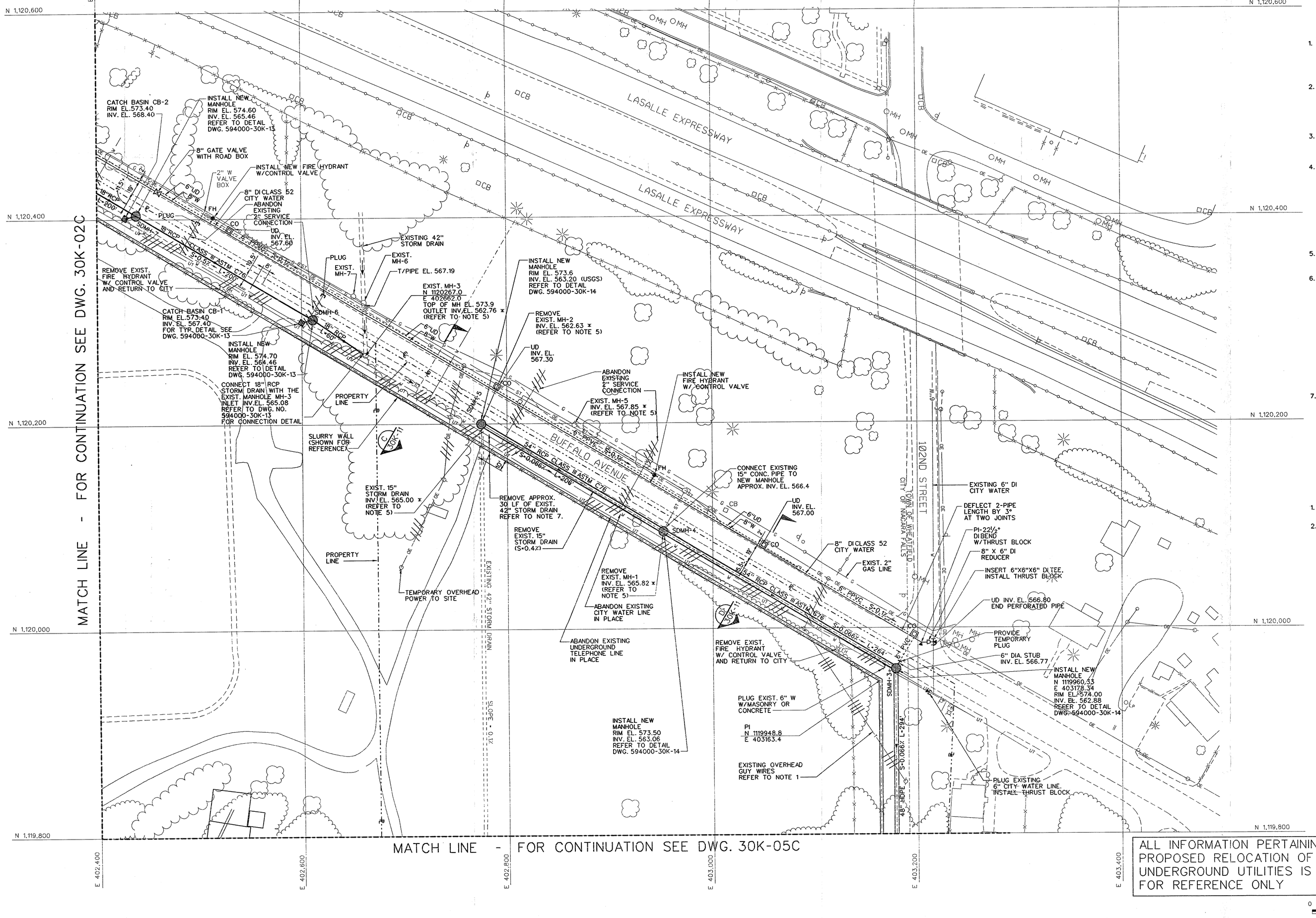


NOTES:

1. EXISTING GAS LINE, TELEPHONE LINE, OVERHEAD ELECTRICAL LINE, CABLE TV LINE AND WATER LINE TO BE RELOCATED AND INSTALLED BY THE OWNING UTILITY/AGENCY. LAYOUT SHOWN IS TENTATIVE. ACTUAL LOCATION TO BE DETERMINED BY OWNING UTILITY.
2. 48" DIA. HDPE STORM DRAIN SHALL BE IN CONFORMANCE WITH ASTM F-894, SPIROLITE CLASS 40 OR APPROVED EQUAL. PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

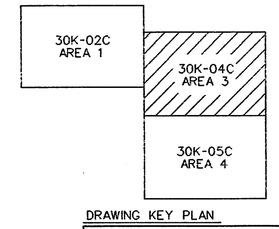
   ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE IN CONFORMANCE WITH ASTM C 76, CLASS III.
3. ALL STORM DRAINAGE WITHIN THE R.O.W. SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF NIAGARA FALLS, ENGINEERING DEPARTMENT STANDARD SPECIFICATIONS.
4. THE NUMBERING SYSTEM FOR EXISTING MANHOLES IS TAKEN FROM A REPORT ENTITLED "FINAL REPORT, UTILITIES INVESTIGATION/RECORD SEARCH PHASE, 102nd STREET REMEDIAL INVESTIGATION, NIAGARA FALLS, NEW YORK", PREPARED BY WOODWARD-CLYDE CONSULTANTS, 5120, BUTLER PIKE, PLYMOUTH MEETING, PA 19462, DATED JULY 15, 1985.

   RIM AND INVERT ELEVATIONS FOR EXISTING MANHOLES (WHERE SHOWN) ARE TAKEN FROM A TOPOGRAPHIC SURVEY PERFORMED BY McINTOSH & McINTOSH, P.C., CONSULTING ENGINEERS, BUFFALO, NEW YORK, DATED 5/1/92.
5. INVERT ELEVATIONS OF EXISTING APPURTENANCES, SHOWN WITH AN ASTERISK (*) ARE CITY OF NIAGARA FALLS DATUM.
6. PRIOR TO WORK ACTIVITIES, THE PUBLIC UTILITY COMPANIES WILL BE NOTIFIED BY THE OWNER OF IMPENDING OPERATIONS. UPON AWARD OF CONTRACT, THE CONTRACTOR SHALL NOTIFY EACH UTILITY OF THE WORK SCHEDULE AND COORDINATE ACTIVITIES WITH THE UTILITY COMPANIES. ALL UNDERGROUND UTILITIES WITHIN THE WORK AREA SHALL BE SUITABLY MARKED BY THE UTILITIES COMPANIES. EXCAVATION AROUND AND WITHIN 2 FEET OF BURIED UTILITIES, ABOVEGROUND APPURTENANCES AND UTILITY POLES SHALL BE PERFORMED BY USE OF HAND TOOLS. PROVIDE SUITABLE PROTECTION FOR ALL UTILITIES. EXCAVATIONS DEEPER THAN 18 INCHES ADJACENT TO UTILITY POLES SHALL BE SLOPED AT 1:1 FROM THE EDGE OF THE POLE. NO MORE THAN 18 INCHES OF THE BURIED SECTION OF THE POLE SHALL BE UNEARTHED WITHOUT TEMPORARY SUPPORT AS APPROVED BY THE UTILITY.
7. REMOVE APPROXIMATELY 30 LF OF EXISTING STORM DRAIN. PLACE DEBRIS AND SOIL IN FILL PLACEMENT CELL AND PLUG END OF PIPE WITH CONCRETE. SCOUR/CLEAN END OF PIPELINE AND COAT WITH EPOXY BONDING AGENT IMMEDIATELY PRIOR TO PLACING CONCRETE. CONCRETE SHALL EXTEND AT LEAST 8" INSIDE OF PIPELINE, 4' BEYOND THE END OF THE PIPELINE AND 2' ABOVE THE PIPELINE BACKFILL WITH BORROW MATERIAL IN 12" COMPACTED LIFTS (90% PROCTOR).

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY SYSTEM RELOCATION DETAILS.
2. REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.

DRAWING KEY PLAN



ALL INFORMATION PERTAINING TO PROPOSED RELOCATION OF UNDERGROUND UTILITIES IS SHOWN FOR REFERENCE ONLY

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/12/94	ISSUED FOR REVIEW AND COMMENT (STORM DRAINAGE)		
0	3/15/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		
A 1	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS
594000-10Z-02	LEGEND AND ABBREVIATIONS

FLUOR DANIEL

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DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
LEAD ENGR./SPEC.	
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN

RELEASE DATE
INITIALS
APP.DATE 9/11/95
APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN AREA 3
STORM DRAINAGE

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-04C	1

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K4C

REDUCED PRINT SCALES 1" 1/2" 3/4" 1/4" 1/8" 1/16" 1/32" 1/64" 1/128"

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

Fri Sep 8 10:04:48 1995 k:\plotc1\queue\BONDSPRF.qef J:\PLOTC1\BOND50\10230K4C.PRF

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-04

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-03

N 1,119,800
N 1,119,600
N 1,119,400
N 1,119,200
N 1,119,000

E 402,400
E 402,600
E 402,800
E 403,000
E 403,200
E 403,400

CO4
N 1119742.7
E 402484.4

IN-LINE CLEANOUT (TYP.) SEE DETAIL DWG. 30K-08

CO5
N 1119694.1
E 402616.6

PROPERTY LINE

S-0.5% MIN.

36" HDPE SLIP LINER

NAPL RECOVERY WELL (TYP.) REFER TO DETAIL DWG. 30K-06
NR-07
N 1119775
E 402805

NR-10
N 1119720
E 403035

40' WIDE PERMANENT EASEMENT (TO BE RELOCATED)

EXISTG. 42" STORM DRAIN, S-0.1%

DEBRIS

NR-06
N 1119630
E 402733

APL COLLECTION TRENCH SEE DETAIL DWG. 30K-08

℄ SLURRY WALL FOR DETAIL REFER DWG. 30S-02

HDPE DOUBLE WALL PIPE (1.5" CARRIER AND 3.5" CONTAINMENT PIPE)

PI
N 1119631.1
E 402602.2

CO-MH5
N 1119583.2
E 402612.5
HIGH POINT
BEGIN TRENCH
BOT. OF TRENCH
EL. 560.50

EXISTING HEADWALL REMOVE 42" CIFLAPGATE INV.EL. 562 +/-

TOP OF BULKHEAD REFER TO DETAIL DWG. 10U-05

TOE OF SLOPE

END OF TRENCH
BOT. OF TRENCH
EL. 558.75

CO6
N 1119543.1
E 402813.7

PZ-04
N 1119485
E 402985

CLEANOUT MANHOLE (TYP.) SEE DETAIL DWG. 30K-08
CO-MH5
N 1119586.9
E 403123.1

BEGIN TRENCH
BOT. OF TRENCH
EL. 561.50

APL COLLECTION TRENCH

CO7
N 1119499.6
E 403019.2

PI
N 1119559.9
E 403164.1

29%

TEMPORARY CONSTRUCTION EASEMENT

PROPERTY LINE

SLURRY WALL

REMOVE AND RELOCATE EXIST. CHAIN LINK FENCE SEE NOTE 7.

WET WELL (TYP.) FOR DETAIL REFER TO DWG. 30K-06
WW-3
N 1119289.7
E 403755.5

PI
N 1119522.6
E 402783.3

POST CLOSURE MONITORING WELL FOR DETAIL, REFER TO DWG. 30K-06
PCM-04
N 1119405
E 402730

POST CLOSURE BEDROCK MONITORING WELL FOR DETAIL, REFER TO DWG. 30K-06
PCBM-02
N 1119400
E 402730

PZ-05
N 1119445
E 403130

S-0.5% MIN.

DENSE VEGETATION

PCM-05
N 1119440
E 403145

PI
N 1119474.3
E 403007.7

CO-MH6
N 1119487.5
E 403016.8
HIGH POINT
BEGIN TRENCH
BOT. OF TRENCH
EL. 560.50

END OF TRENCH
BOT. OF TRENCH
EL. 558.75

PI
N 1119372.5
E 403102.6

WW4
N 1119395.3
E 403107.9

PI
N 1119388.6
E 403124.2

ABANDONED STRUCTURE

COFFERDAM

CONTOUR LINE OF SSI'S ABOVE SURVEY LEVELS

SILT CURTAIN/ FISH SCREEN

PI •5
PC •6
PT •7
•8
R=140'

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-10S-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL.
2. REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
3. REFER TO DWG. NO. 594000-30K-06 FOR WET WELL, NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, POST CLOSURE BEDROCK MONITORING WELL, AND PIEZOMETER DETAILS.
4. REFER TO DRAWING 594000-30K-08 FOR CLEANOUT MANHOLE DETAIL, INLINE CLEANOUT DETAIL, AND APL COLLECTION TRENCH .
5. REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
6. REFER TO ENLARGED PLAN 594000-10U-03 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE ALIGNMENT, AREA 4.
7. REFER TO DWG. 594000-30K-5B FOR LIMITS OF REMOVAL OF PERIMETER SOILS.
8. REFER TO DWG. NO. 594000-30K-5C FOR STORM DRAINAGE LAYOUT, AREA 4.
9. REFER TO DWG. NO. 594000-10Z-02 FOR SITE LEGEND AND ABBREVIATIONS.

DRAWING KEY PLAN

30K-02 AREA 1	30K-04 AREA 3
30K-03 AREA 2	30K-05 AREA 4

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	DRK
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS
DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

NOTICE! THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY, AND IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN FOR WHICH IT IS FURNISHED.

DESIGNED BY	A. BUMB/U. KUMTHEKAR
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	A. BUMB
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	9/18/96
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN
AREA 4

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-05	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K05

METRIC SCALES
REDUCED PRINT SCALES
SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE

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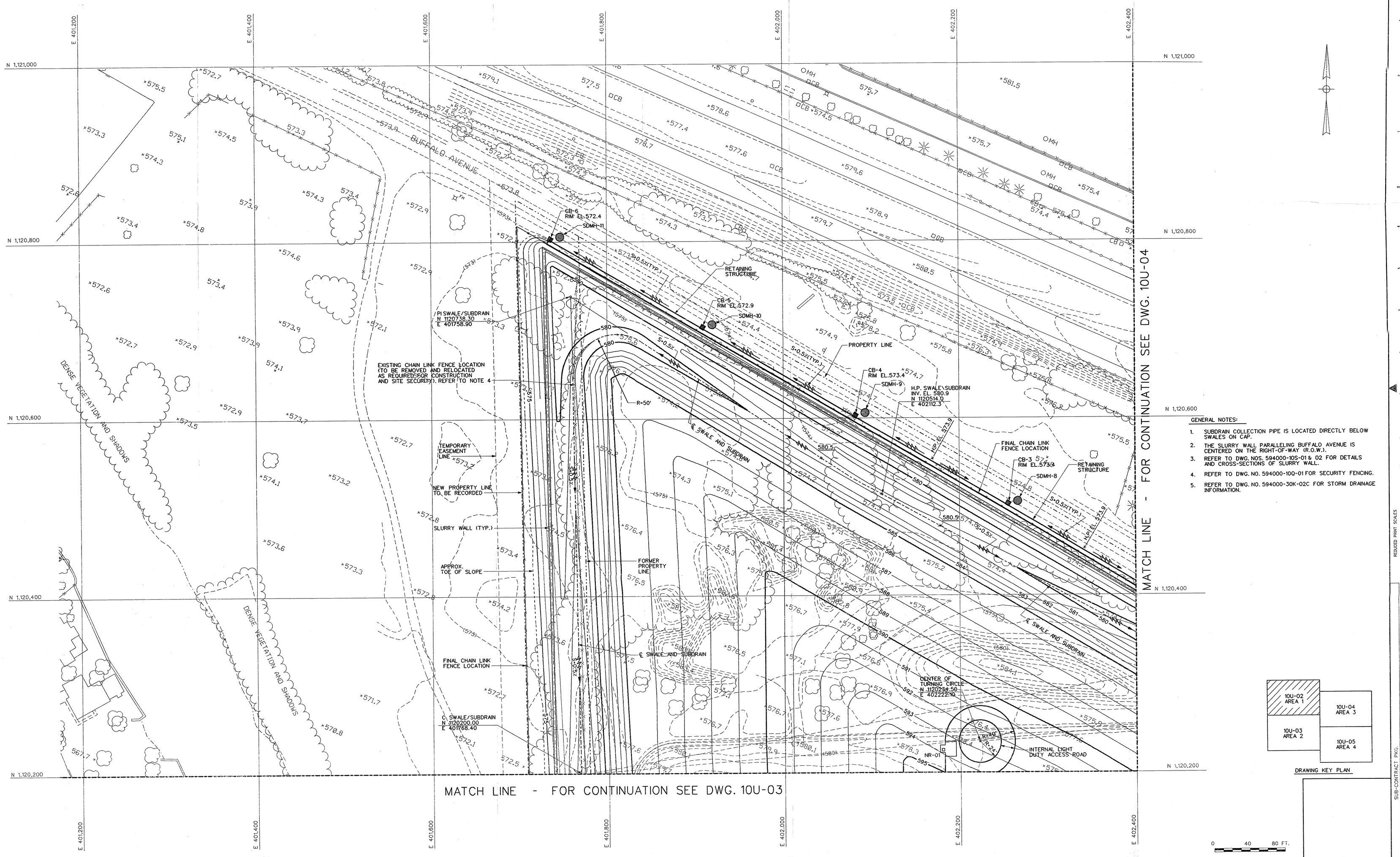

GENERAL NOTES:

1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
3. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.
4. REFER TO DWG. NO. 594000-10D-01 FOR SECURITY FENCING.
5. REFER TO DWG. NO. 594000-30K-02C FOR STORM DRAINAGE INFORMATION.

DRAWING KEY PLAN

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		DRK

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	J. GERVAIS
INITIALS	
PROJECT	R. MARGUCCIO
APP. DATE	4/13/95
CLIENT	OXYCHEM/OLIN
APP. DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE GRADING PLAN AREA - 1

SCALE	DRAWING NUMBER	REV.
1" = 40'	594000-10U-02	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210U02

SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE

REDUCED PRINT SCALES

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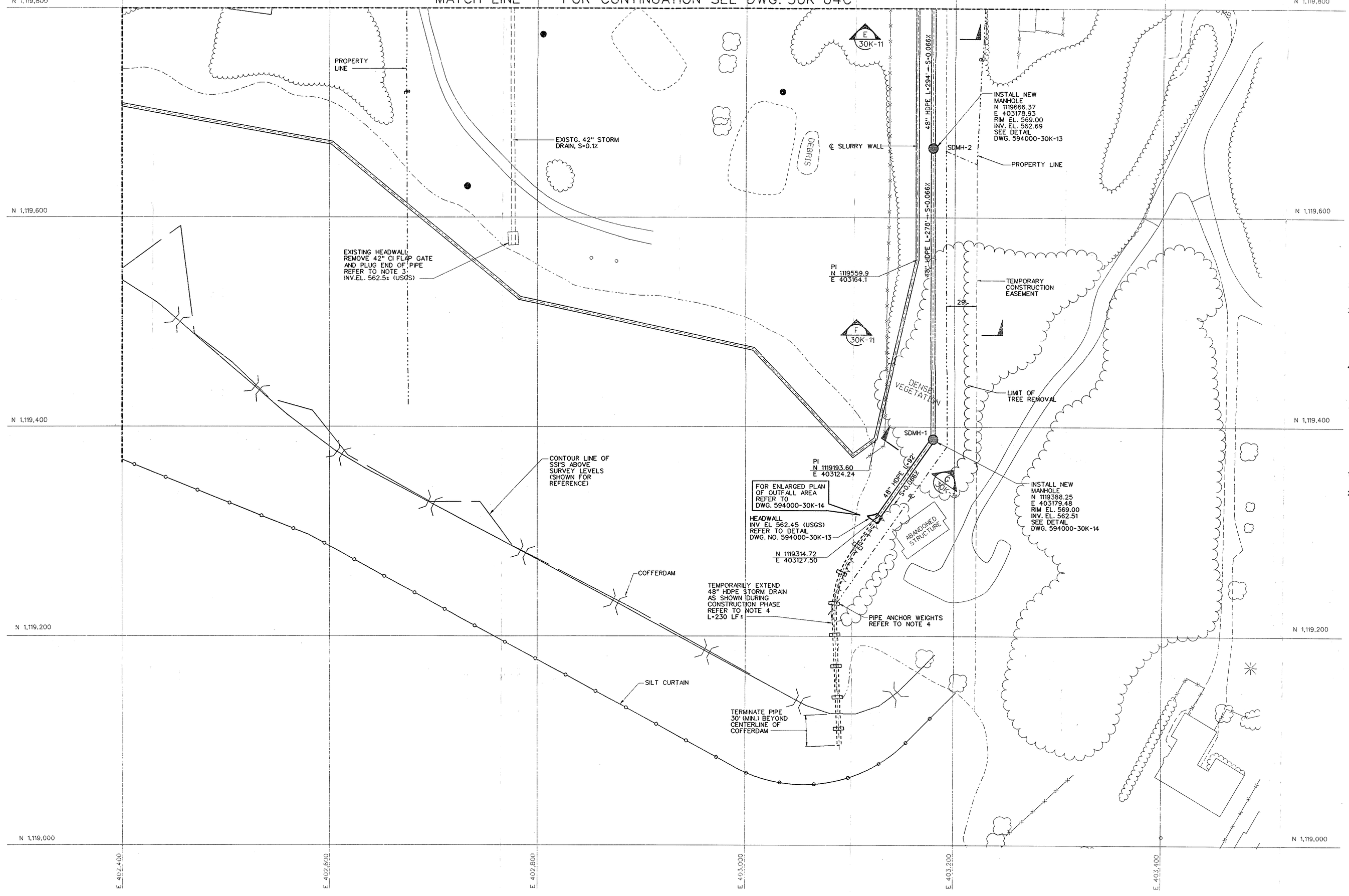

NOTES:

1. 48" DIA. HDPE STORM DRAIN SHALL BE IN CONFORMANCE WITH ASTM F-894, SPIROLITE CLASS 40 OR APPROVED EQUAL. PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

   TEMPORARY 48" DIA. HDPE STORM DRAIN SHALL BE SDR 32.5, 1000-SERIES PIPE AS MANUFACTURED BY PHILLIPS-DRISCOPIPE, INC. OR APPROVED EQUAL.

2. CLEAR TREES, SHRUBS, VEGETATION AND ALL OTHER MATERIAL PROTRUDING ABOVE THE SURFACE WITHIN THE LIMITS OF WORK.

3. REMOVE EXISTING 42" CI FLAP GATE AND PLUG END OF PIPE WITH CONCRETE. SCOUR/CLEAN END OF PIPELINE AND COAT WITH EPOXY BONDING AGENT IMMEDIATELY PRIOR TO PLACING CONCRETE. CONCRETE SHALL EXTEND AT LEAST 8' INSIDE OF PIPELINE, 4' BEYOND THE END OF THE PIPELINE AND 2' ABOVE THE PIPELINE. BACKFILL WITH BORROW MATERIAL IN 12" COMPACTED LIFTS (90% PROCTOR).

4. LAY PIPE ALONG EXISTING SHORE LINE. COORDINATE INSTALLATION OF TEMPORARY EXTENSION WITH COMPLETION OF THE COFFERDAM. EXCAVATE SHALLOW TRENCH TO PLACE PIPE. ALLOW PIPE TO FILL WITH RIVER WATER AND SINK INTO THE TRENCH. INSTALL SOIL ANCHORS AT 30FT INTERVALS TO SECURE THE PIPE. ANCHORS AND STRAPS SHALL BE CAPABLE OF RESISTING AN UPLIFT FORCE OF 6 KIPS.

   EXCAVATED MATERIAL SHALL BE PLACED INTHE SEDIMENT PLACEMENT CELL ON THE SITE.

GENERAL NOTES:

1. REFER TO DWG. NO. 594000-30K-11, 13 AND 14 FOR STORM DRAINAGE SECTIONS AND DETAILS.
2. REFER TO DWG. NO. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/29/94	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		
0	2/28/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		
1	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

DWG.NO.	REFERENCE DRAWINGS
594000-10Z-02	LEGEND AND ABBREVIATIONS

FLUOR DANIEL

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DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
LEAD ENGR./SPEC.	
PROJECT	R. MARGUGLIO
CLIENT	OXYCHEM/OLIN
RELEASE DATE	
INITIALS	
APP.DATE	9/18/95
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN AREA 4
STORM DRAINAGE

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-30K-05C	1

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K5C

DIST. CODE WRK. PKG. SUB-CONTRACT PKG.

REDUCED PRINT SCALES

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MATCH LINE - FOR CONTINUATION SEE DWG. 10U-02

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-04

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-05

E 401,200 E 401,400 E 401,600 E 401,800 E 402,000 E 402,200 E 402,400

N 1,120,200 N 1,120,000 N 1,119,800 N 1,119,600 N 1,119,400

BUFFALO AVENUE

℄ SWALE/SUBDRAIN N 1120200.00 E 401768.40

℄ SWALE AND SUBDRAIN

SLURRY WALL (TYP.)

EXISTING CHAIN LINK FENCE LOCATION (TO BE REMOVED AND RELOCATED AS REQUIRED FOR CONSTRUCTION AND SITE SECURITY). REFER TO NOTE 4

FINAL CHAIN LINK FENCE LOCATION

TEMPORARY EASEMENT LINE

APPROX. TOE OF SLOPE

FORMER PROPERTY LINE

INTERNAL LIGHT DUTY ACCESS ROAD

WET WELL WW-1

4" DIA. TEE N 1119832.80 E 401774.90 E 572.22

6" DIA HDPE SUBDRAIN S=0.5% 100'

END SUBDRAIN

R-20'

℄ SLURRY WALL

6" DIA HDPE SUBDRAIN S=0.5% 200'

℄ SUBDRAIN

END SUBDRAIN

CHAIN LINK FENCE

WET WELL WW-2

SLURRY WALL (TYP.)

NR-02 NR-03 NR08

DEBRIS

GENERAL NOTES:

1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
3. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.
4. REFER TO DWG. NO. 594000-10O-01 FOR SECURITY FENCING.

DRAWING KEY PLAN

10U-02 AREA 1	10U-04 AREA 3
10U-03 AREA 2	10U-05 AREA 4

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
LEAD ENGR./SPEC.	J. GERVAIS
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN
RELEASE DATE	
INITIALS	
APP.DATE	9/13/95

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE GRADING PLAN - AREA 2

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-10U-03	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210U03

REDUCED PRINT SCALES

SUB-CONTRACT PKG.

WRK. PKG.

DIST. CODE

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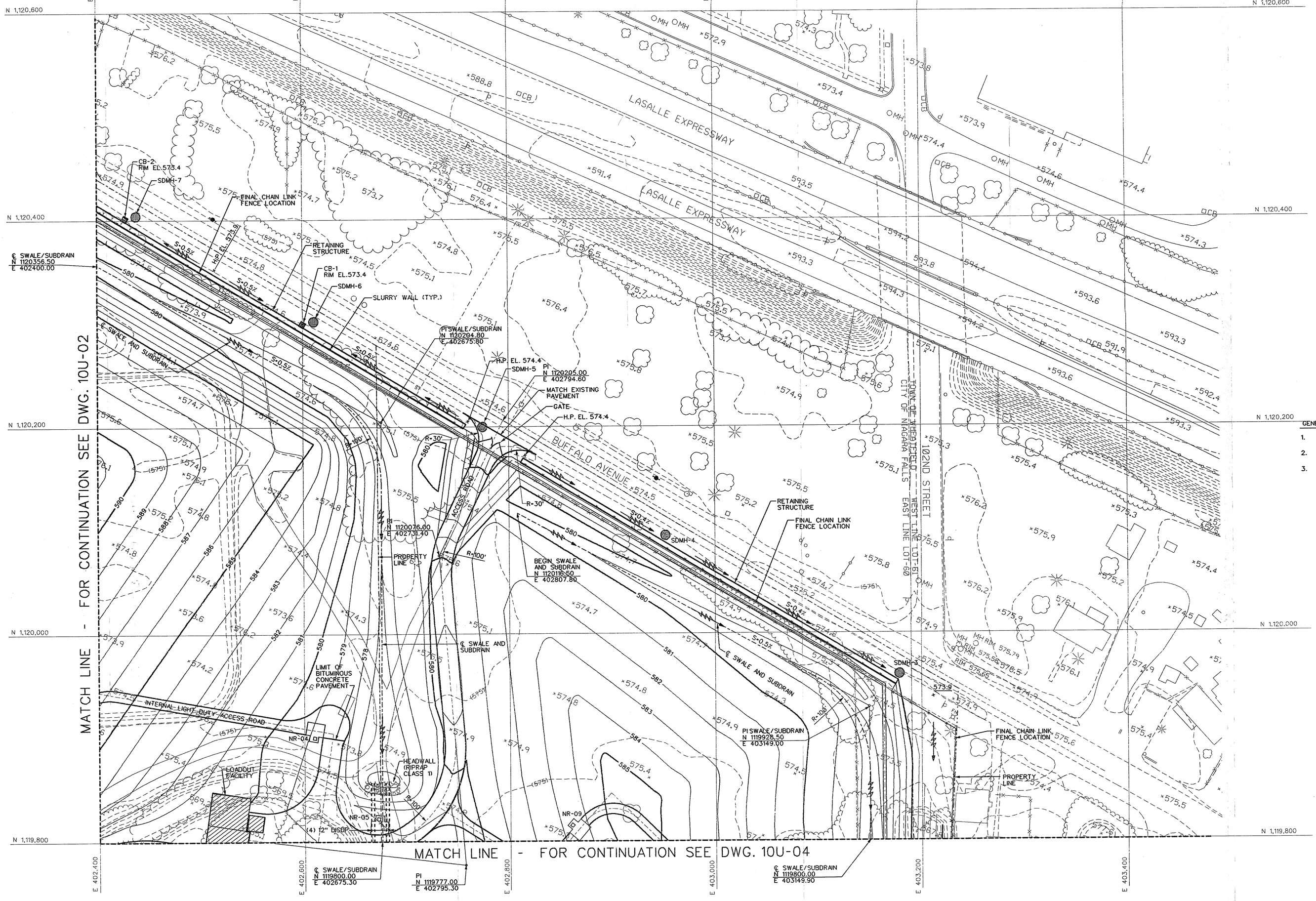
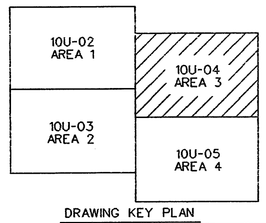


GENERAL NOTES:

1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
3. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.



DRAWING KEY PLAN

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/23/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	DRK
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		JTS

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	T. SZYMONIAK
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	J.GERVAIS
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	9/13/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE GRADING PLAN - AREA 3

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-10U-04	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210U04

WRK. PKG. SUB-CONTRACT PKG. DIST. CODE

REDUCED PRINT SCALES

Fri Sep 8 09:50:24 1995 k:\plotcl\queue\BOND5PRF.qcf J:\PLOTC\BOND50\10210U04.PRF

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-04

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-03

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N 1,119,600
N 1,119,400
N 1,119,200
N 1,119,000

E 402,400
E 402,600
E 402,800
E 403,000
E 403,200
E 403,400

℄ SWALE/SUBDRAIN
N 1119800.00
E 402675.30

℄ SWALE/SUBDRAIN
N 1119800.00
E 403149.90

LOADOUT FACILITY

(4) 12" DIA. PVC SCH. 80

RIPRAP CLASS I

LIMIT OF BITUMINOUS CONCRETE PAVEMENT

℄ SWALE AND SUBDRAIN

NR-10

NR-06

DEBRIS

℄ SWALE AND SUBDRAIN

FINAL CHAIN LINK FENCE LOCATION

PROPERTY LINE

SDMH-2

SDMH-1

END SUBDRAIN

6" DIA. HDPE SUBDRAIN S=0.5%

200'

INTERNAL LIGHT DUTY ACCESS ROAD

4" DIA. TEE
N 1119603.00
E 402675.60
E 572.22

WET WELL WW-3

4" DIA. HDPE SUBDRAIN S=0.5%

CHAIN LINK FENCE

473'

4" DIA. HDPE SUBDRAIN S=0.5%

WET WELL WW-4

SLURRY WALL (TYP.)

4" DIA. ELL
N 1119390.40
E 403077.60
E 572.22

HEADWALL

DENSE VEGETATION

GENERAL NOTES:

1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
2. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.

DRAWING KEY PLAN

10U-02 AREA 1	10U-04 AREA 3
10U-03 AREA 2	10U-05 AREA 4

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR/SPEC.	J. GERVAIS
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	9/15/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE GRADING PLAN - AREA 4

SCALE	DRAWING NUMBER	REV.
1"=40'	594000-10U-05	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K05

REDUCED PRINT SCALES

SUB-CONTRACT PKG.

WRK. PKG.

DIST. CODE

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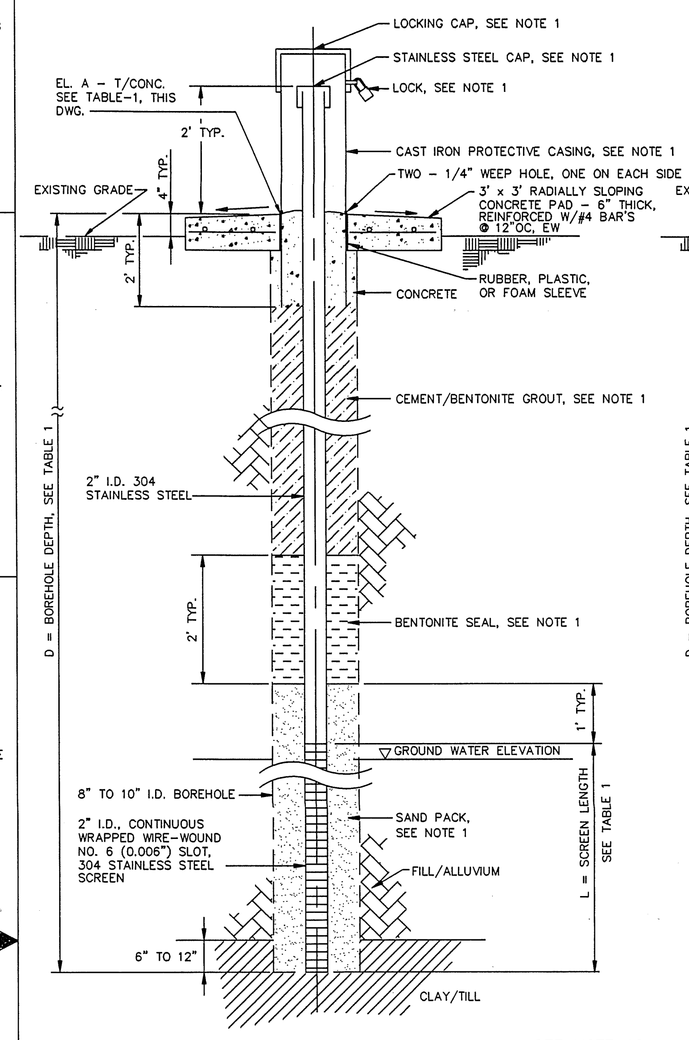
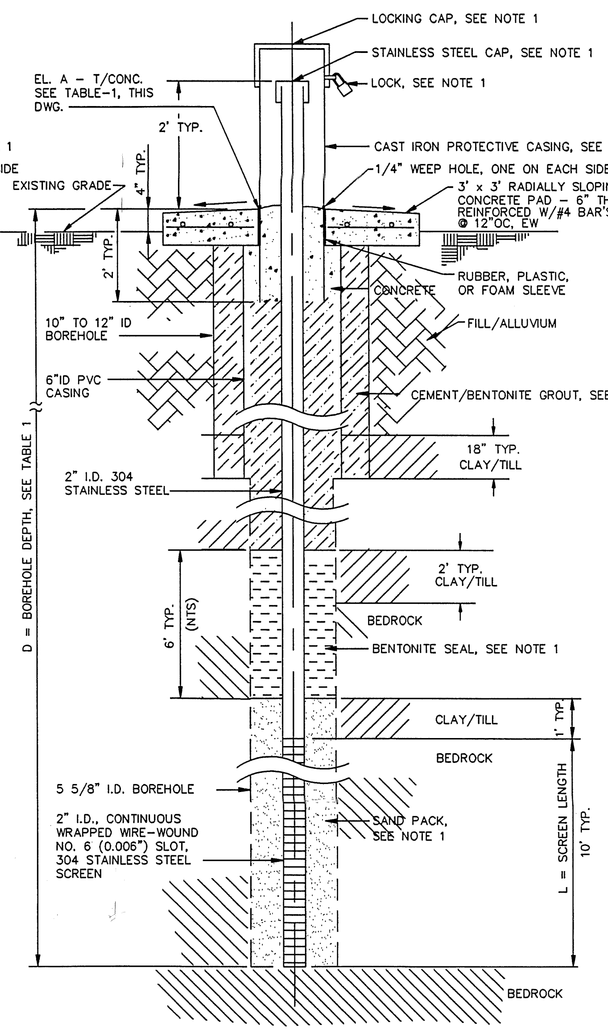
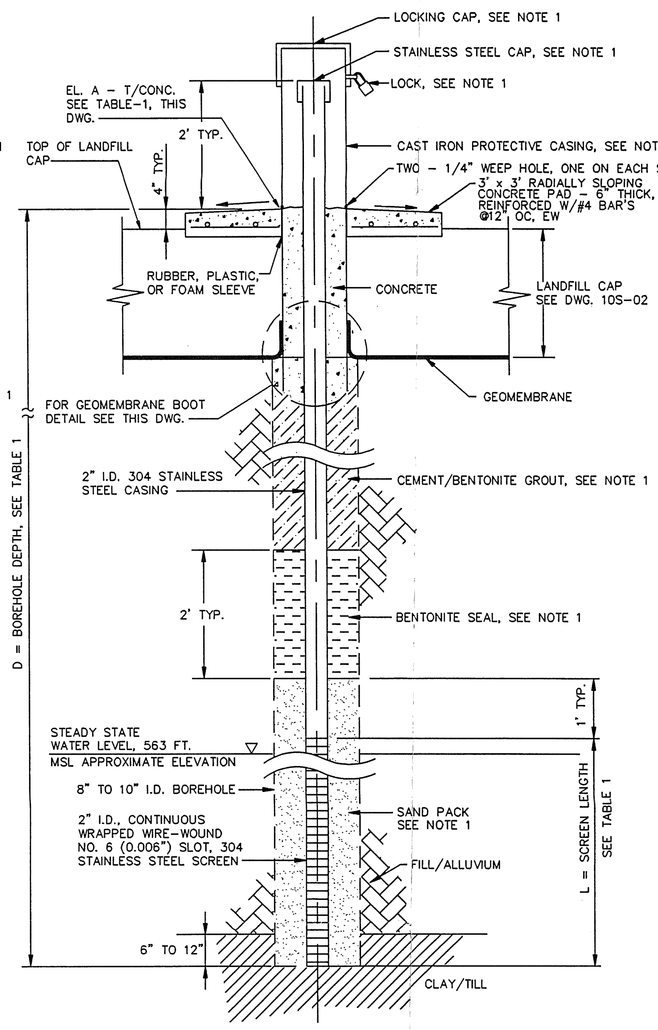


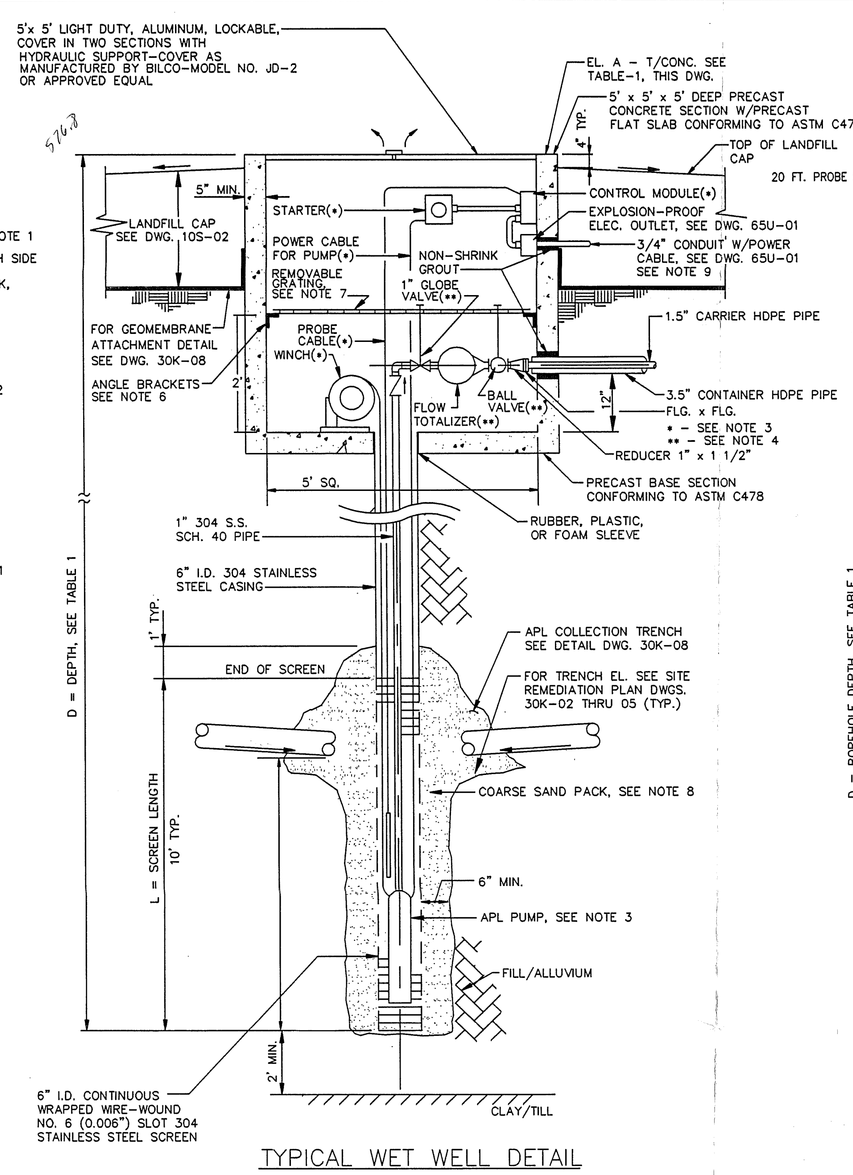
POST CLOSURE MONITORING WELL (PCM) DETAIL
PCM–01 THROUGH PCM–08
N.T.S.



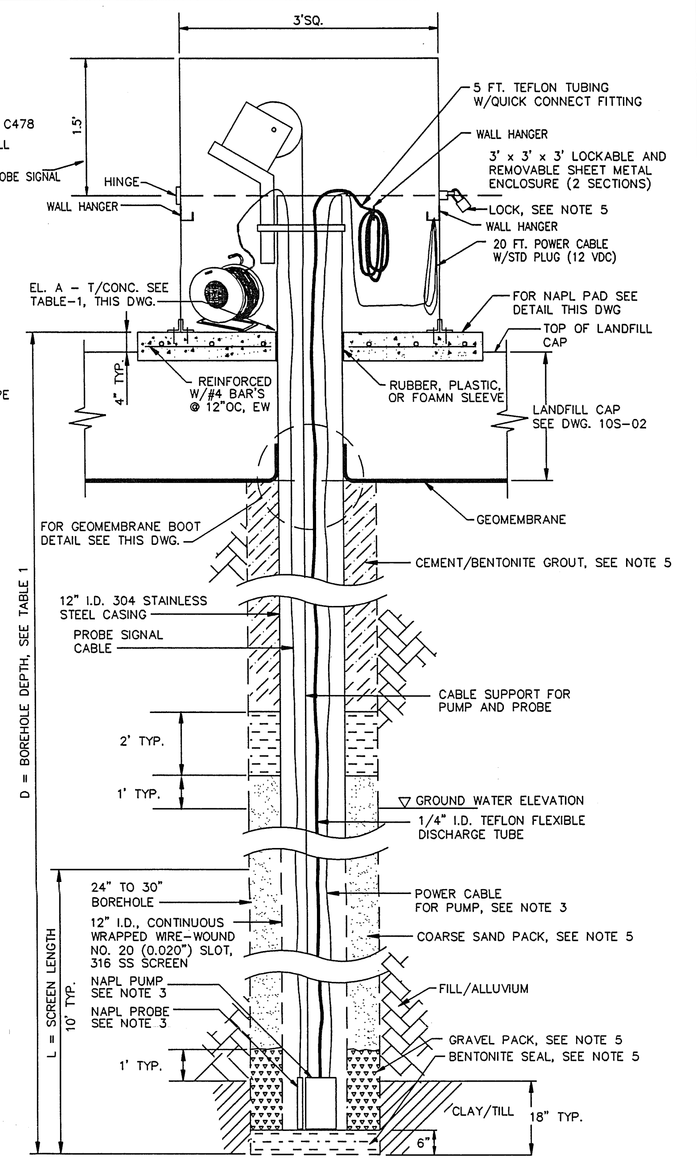
POST CLOSURE BEDROCK MONITORING WELL (PCBM) DETAIL
PCBM–01 THROUGH PCBM–03
N.T.S.



PIEZOMETER (PZ) DETAIL
PZ–01 THROUGH PZ–08
N.T.S.



TYPICAL WET WELL DETAIL
WET WELL WW–1 THROUGH WW–4
N.T.S.



TYPICAL NAPL RECOVERY WELL (NR) DETAIL
NR–01 THRU NR–04 & NR–06 THRU NR–10
N.T.S.

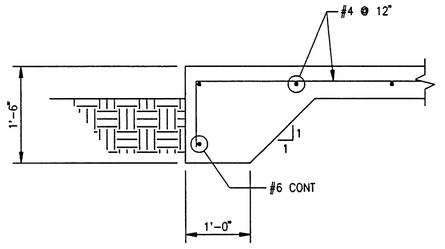
GENERAL NOTES:

1. FOR SITE REMEDIATION PLANS SEE DWGS. 30K–02 THRU –05.
2. FOR SITE GRADING PLANS SEE DWGS. 10U–02 THRU –05.
3. ALL CONCRETE SURFACES TO BE BROOM FINISHED.
4. FOR OTHER NOTES, SEE DWG. 594000–15Q–01.

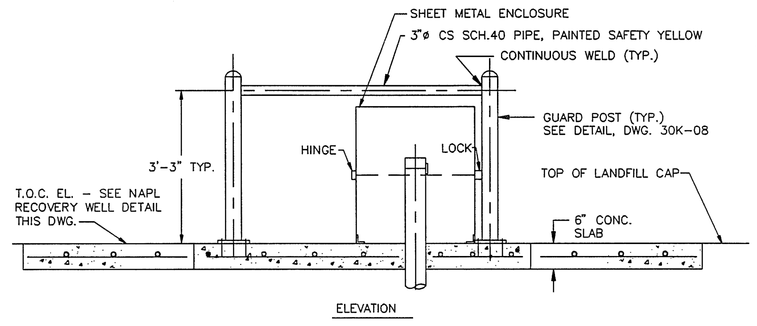
TABLE 1 WELLS *				
WELL NO./ PIEZOMETER NO.	TOP OF CONCRETE (EL. A)	BOREHOLE DIAMETER	BOREHOLE DEPTH (D)	SCREEN LENGTH (L)
NR–01	594.1'	24" TO 30"	44'	10'
NR–02	578.5'	24" TO 30"	39'	10'
NR–03	588.4'	24" TO 30"	50'	10'
NR–04	579.0'	24" TO 30"	35'	10'
NR–05	579.5'	EXISTING WELL**		
NR–06	576.8'	24" TO 30"	35'	10'
NR–07	581.1'	24" TO 30"	36'	10'
NR–08	586.3'	24" TO 30"	45'	10'
NR–09	583.8'	24" TO 30"	38'	10'
NR–10	582.7'	24" TO 30"	33'	10'
PCBM–01	575.0'	8" TO 10"	58'	10'
PCBM–02	575.0'	8" TO 10"	55'	10'
PCBM–03	577.5'	8" TO 10"	59'	10'
PCM–01	579.3'	8" TO 10"	21'	10'
PCM–02	575.4'	8" TO 10"	27'	18'
PCM–03	575.0'	8" TO 10"	31'	18'
PCM–04	575.0'	8" TO 10"	29'	15'
PCM–05	576.1'	8" TO 10"	23'	13'
PCM–06	578.6'	8" TO 10"	12'	5'
PCM–07	577.5'	8" TO 10"	12'	5'
PCM–08	577.5'	8" TO 10"	13'	5'
PZ–01	580.8'	8" TO 10"	21'	5'
PZ–02	577.4'	8" TO 10"	28'	15'
PZ–03	575.3'	8" TO 10"	31'	18'
PZ–04	575.3'	8" TO 10"	29'	15'
PZ–05	576.8'	8" TO 10"	24'	10'
PZ–06	578.6'	8" TO 10"	13'	5'
PZ–07	578.9'	8" TO 10"	14'	5'
PZ–08	579.1'	8" TO 10"	15'	5'
WW–1	576.8'	18"	25'	10'
WW–2	575.7'	18"	27'	10'
WW–3	575.7'	18"	22'	10'
WW–4	575.7'	18"	22'	10'

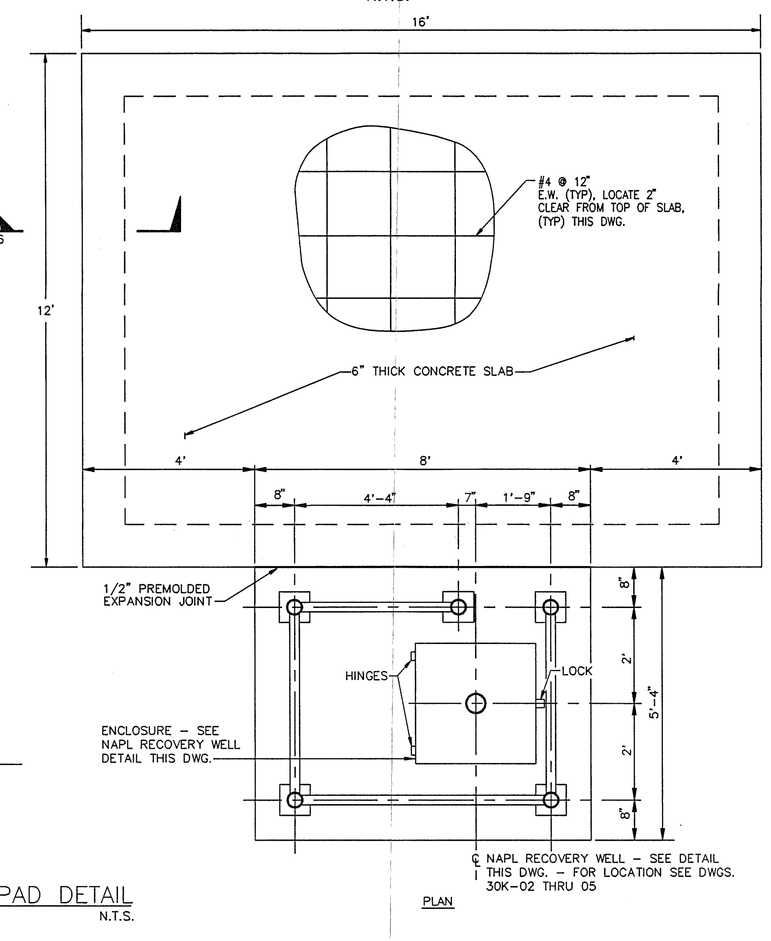
* BOREHOLE DEPTHS AND TOP OF CONCRETE ELEVATIONS SHALL BE VERIFIED IN THE FIELD DURING INSTALLATION.

** EXTEND CASING AND FINISH NAPL PAD.



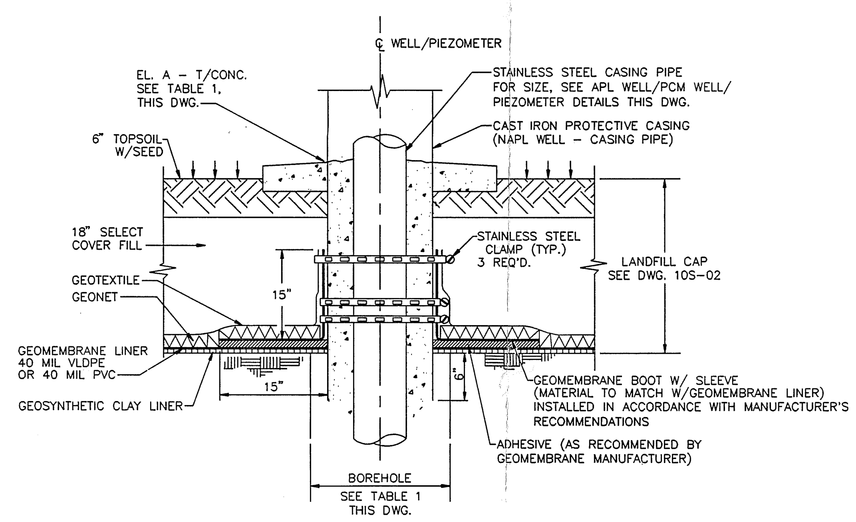
SECTION A
3/4"=1'-0" 30K–06





PLAN

NAPL PAD DETAIL
N.T.S.



TYPICAL GEOMEMBRANE BOOT DETAIL
N.T.S.

NOTES – WELL INSTALLATION

1. MATERIALS AND INSTALLATION FOR POST CLOSURE MONITORING WELLS AND PIEZOMETERS SHALL BE AS SPECIFIED IN SECTION 02011.
2. FOR LOCATION OF POST CLOSURE MONITORING WELLS, WET WELLS, NAPL RECOVERY WELLS AND PIEZOMETERS SEE SITE REMEDIATION PLAN DWGS. 30K–02 THRU 30K–05.
3. FOR APL AND NAPL PUMP AND ACCESSORIES AND CONTROLS, SEE EQUIPMENT DATA SHEETS.
4. FOR VALVES AND FLOW TOTALIZER SEE INSTRUMENT SPECIFICATIONS. VALVES WILL HAVE 18 INCH STEM EXTENSIONS.
5. MATERIALS AND INSTALLATION FOR NAPL RECOVERY WELLS SHALL BE AS SPECIFIED IN SECTION 02012.
6. 3" x 2" x 3/8" LLV ANGLE BRACKET. ATTACH BRACKETS TO WALL WITH 3/4" DIAMETER HILTI KWIK BOLTS AT 18" ON CENTER.
7. PROVIDE 1 1/2" DEEP FIBER GLASS GRATING. PROVIDE 1 1/2" CLEARANCE BETWEEN EDGE OF GRATING AND WALLS. CUT GRATING AS NEEDED FOR VALVES AND PUMP INSTALLATIONS.
8. THE COARSE SAND SHALL CONSIST OF CLEAN, WELL ROUNDED SILICA SAND FREE OF LOAM, DUST AND OTHER FOREIGN PARTICLES. THE GRADATION SHALL BE NO. "OON" GRADE MORIE COMPANY SAND OR CONFORMING TO THE FOLLOWING GRADATION:

SIEVE OPENING (INCHES)	CUMULATIVE PERCENT RETAINED (BY WEIGHT)
0.033	0 – 1
0.028	5 – 15
0.023	30 – 50
0.020	85 – 93
0.016	95 – 98
0.012	98.5 – 99.7
0.008	100

9. 3/4" PVC COATED RIGID GALVANIZED CONDUIT. INSTALL CROUSE–HINDS NO. EYS21 SEALING FITTING AT ENTRANCE TO THE VAULT.
10. SEE DWG. NO. 594000–30K–08 FOR MONITORING WELLS AND PIEZOMETER PROTECTION AND GUARD POST DETAIL.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ACB JG	DRK
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REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	A. BUMB/U. KUMTHEKAR
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	A. BUMB
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	
CLIENT	OXYCHEM / OLIN
APP.DATE	

OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

APL, NAPL AND MONITORING WELLS AND MISC. DETAILS

SCALE	DRAWING NUMBER	REV.
AS NOTED	594000–30K–06	B

MANUAL CHANGES MADE – YES ☐ NO ☐ DWG. FILE UPDATED – YES ☐ NO ☐ MODEL UPDATED – YES ☐ NO ☐ CADD DRAWING No. 10230K06

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SUB–CONTRACT PKG. VRAC PKG. DIST. CODE

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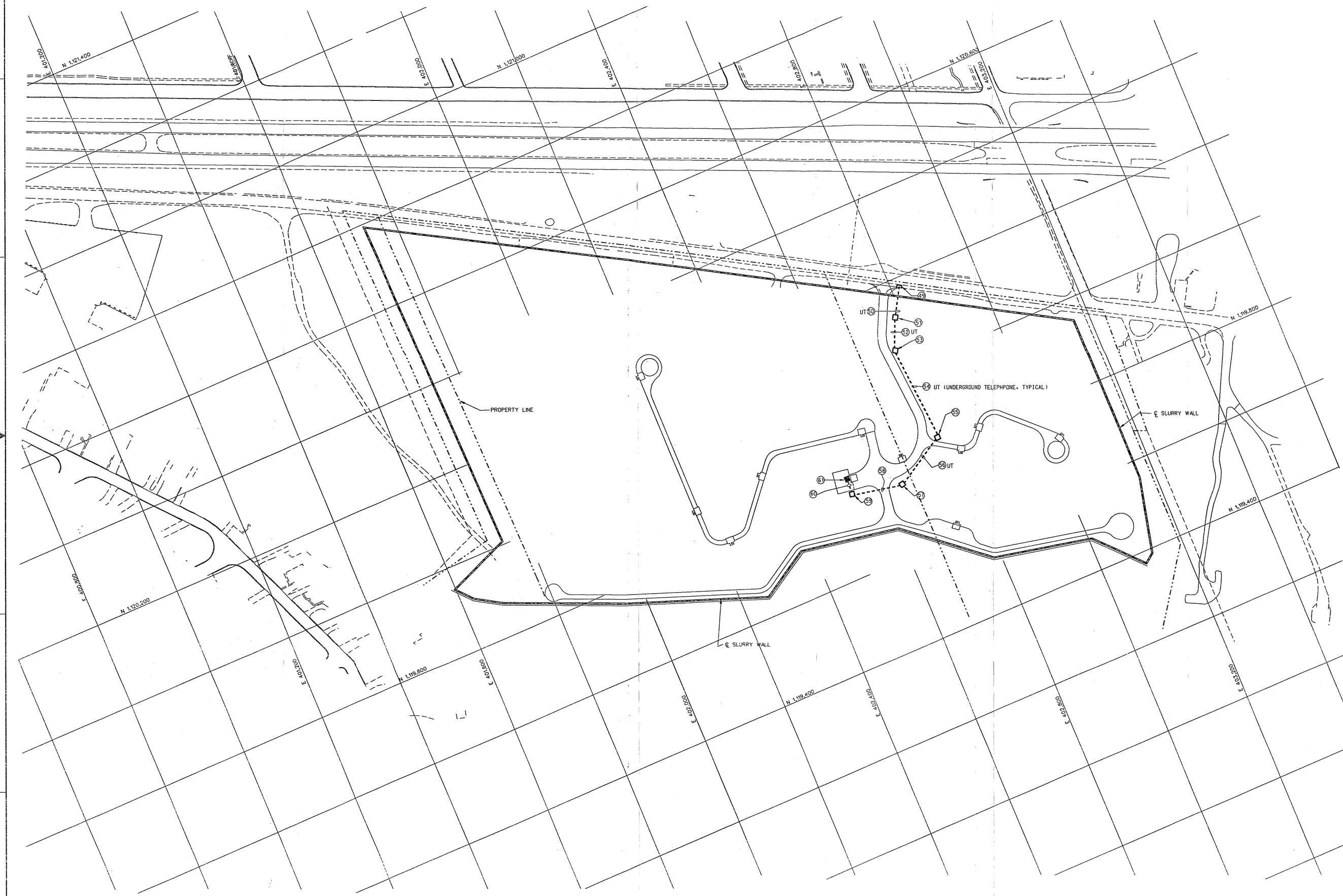

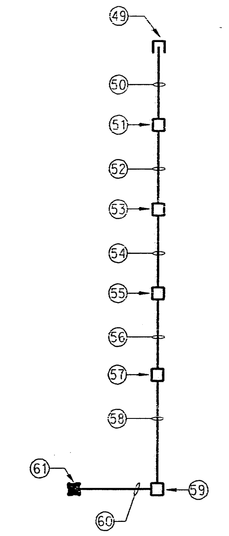

TELEPHONE AND INSTRUMENTATION RISER DIAGRAM

49. CAP ON 2" PVC CONDUIT FOR TELEPHONE.

50. APPROXIMATELY 75 FEET 2" SCHEDULE 40 RIGID PVC CONDUIT WITH NYLON PULL CORD FOR TELEPHONE CABLE. RUN CONDUIT BELOW FINISHED GRADE.

51. PULLBOX NO.17. PRE-CAST MANF. CO. NO. E-3½ STATE PULLBOX SPB SERIES WITH STEEL DIAMOND PLATE BOLT DOWN COVER. TOP OF BOX TO BE 1" ABOVE FINISHED GRADE.

52. APPROXIMATELY 75 FEET. SAME AS NOTE 50.

53. PULLBOX NO.18. SAME AS PULLBOX NO.17

54. APPROXIMATELY 220 FEET. SAME AS NOTE 50.

55. PULLBOX NO.19. SAME AS PULLBOX NO.17

56. APPROXIMATELY 135 FEET. SAME AS NOTE 50.

57. PULLBOX NO.20. SAME AS PULLBOX NO.17.

58. APPROXIMATELY 120 FEET. SAME AS NOTE 50.

59. PULLBOX NO.21. SAME AS PULLBOX NO.17.

60. APPROXIMATELY 40 FEET 2" CONDUIT WITH NYLON PULL CORD. RUN BELOW FINISHED GRADE.

61. INSTRUMENTATION CONTROL CABINET. HOFFMAN NO. A-36H3612ORLP NEMA 4X ENCLOSURE. MOUNT ENCLOSURE ON GALVANIZED UNISTRUT FRAME. MOUNT UNISTRUT FRAME ON A CONCRETE SLAB. SEE DRAWING 594000-150-01

NOTE 1: COORDINATE LOCATIONS OF UNDERGROUND ELECTRICAL PULLBOXES. SEE DRAWING 594000-65U-01 FOR LOCATIONS.

NOTE 2: CONTRACTOR TO VERIFY ALL CATALOG PART NUMBERS WITH LATEST EDITION OF MANUFACTURER'S CATALOG.

NOTE 3: ALL UNDERGROUND CONDUITS ARE SHOWN DIAGRAMATICALLY. ROUTE CONDUIT BELOW ROADS MINIMUM 24" DEEP AND ALL OTHER LOCATIONS MINIMUM 18" DEEP.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
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B	9/8/95	ENGINEERING REPORT SUBMITTAL (DRAFT FINAL)	TD	DRK PJV

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY: T DENDY / C GARMAN
CHECKED BY: T DENDY / R P SCHMIDT
SUPERVISOR: R P SCHMIDT — RELEASE DATE:
LEAD ENGR./SPEC.: R P SCHMIDT — INITIAL: RPS
PROJECT: R. MARGUCCIO — APP/DATE: 9/13/95
CLIENT: OXYCHEM/OLIN — APP/DATE:

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

TELEPHONE AND INSTRUMENTATION PLAN

SCALE: 1"=80' — DRAWING NUMBER: 594000-65U-02 — REV.: B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10265U02

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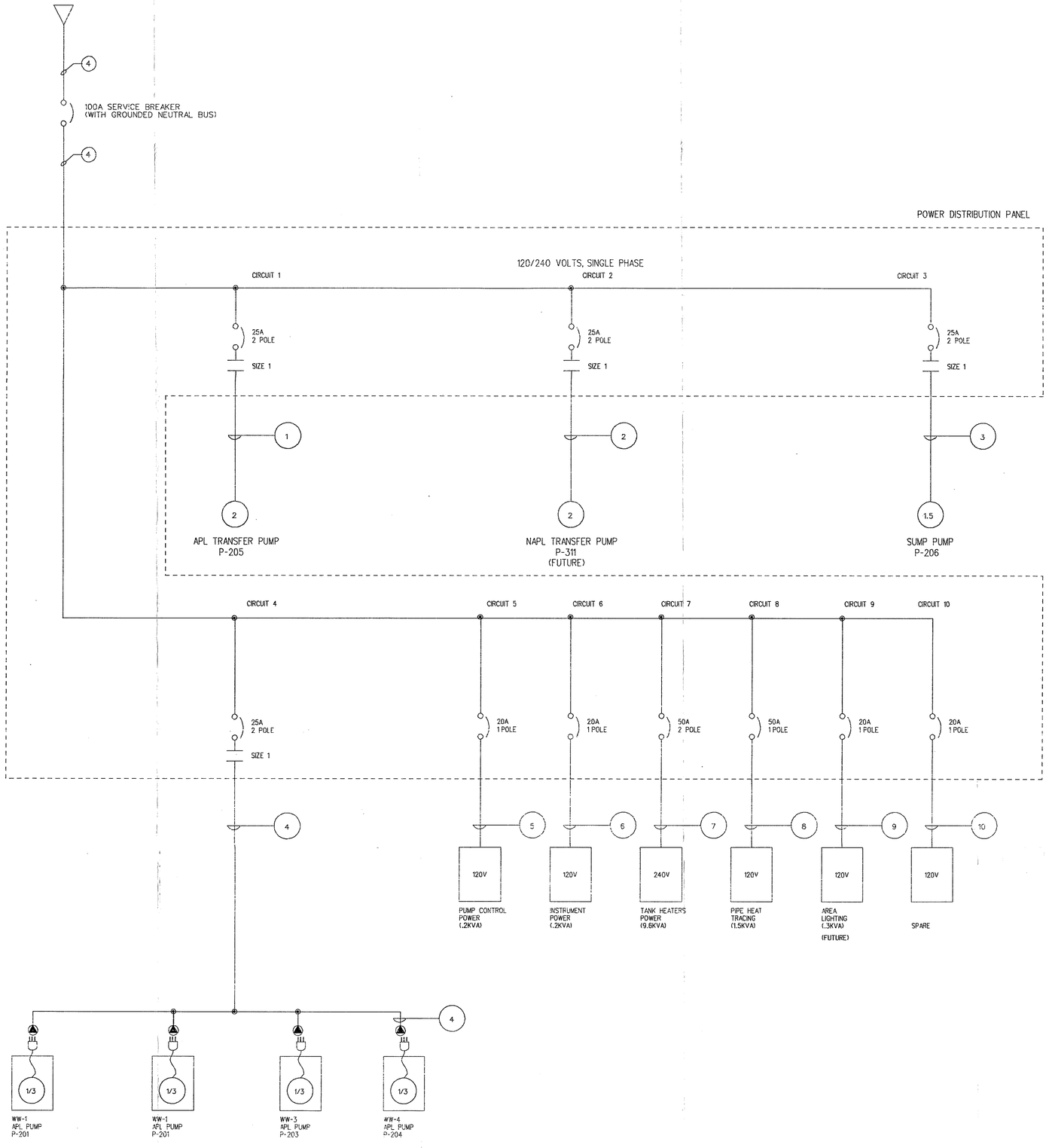
WRK. PKG.
DIST. CODE



ONE LINE DIAGRAM
POWER DISTRIBUTION PANELBOARD

NOTES:

1. P-205:
   2-#10 THW & 1-#10 THW GROUND, ¾" PVC COATED RGS CONDUIT TO PUMP. ALSO
   RUN 3-#12 THW & 1-#12 THW GROUND, ¾" CONDUIT TO HAND-OFF-AUTO SWITCH NEAR
   PUMP. PROVIDE SQUARE D CLASS 9001 SWILAR TO TYPE SKYTII NEMA 4X, HAND-OFF-AUTO
   (SPRING RETURN TO OFF FROM HAND POSITION) MOUNT NEAR MOTOR. SEE 549000-70N-08
2. P-311:
   SAME AS NOTE 1 EXCEPT SEE 549000-7N-10. (FUTURE)
3. P-206:
   SAME AS NOTE 1 EXCEPT SEE 54900-70N-09.
4. ELECTRICAL POWER REQUIREMENTS FOR PUMPS AND SERVICE ENTRANCE ARE INDICATED ON DWG. 594000-65U-01
5. CONTROL POWER FOR STARTERS, (2-#12 THW & 1-#12 THW GND)
6. INSTRUMENT CONTROL POWER, RUN 2-#12 THW & 1-#12 THW
   GROUND IN ¾" PVC COATED RIGID GALVANIZED CONDUIT
   TO INSTRUMENT CONTROL CABINET.
7. REMOVABLE ELECTRIC PANEL COIL HEATERS ON TANKS (PROVIDED WITH TANKS).
   RUN 2-#6 THW & 1-#10 THW GROUND IN 1" PVC COATED RIGID CONDUIT
   TO TANKS.
8. HEAT TRACING ON PIPES. PROVIDE APPROXIMATELY 250 FEET OF CHEMELEX
   NO. 8BTV1-CT HEATING CABLE. TRACE THREE RUNS OF 2" PIPE AND TWO RUNS
   OF 3" PIPE. INSULATE PIPES WITH 1" OF FIBERGLASS INSULATION WITH PVC
   JACKET FOR WEATHER PROTECTION.
   BELOW GRADE, HEAT TRACE DOWN TO FROST LINE AND INSULATE
   AND WRAP WITH TWO LAYERS OF 15# ROOF FELT AND COAT GENEROUSLY
   WITH BITUMASTIC SPIRAL THE HEATING CABLE AROUND THE 3" PIPE TO PROVIDE
   18 INCHES OF CABLE TO EVERY ONE FOOT OF PIPE. APPLY NO. AT-350 ALUMINUM
   TAPE OVER ALL OF THE HEATING CABLE BELOW GRADE.
   PROVIDE ONE CHEMELEX NO. AMC-1A THERMOSTAT AND MOUNT BESIDE POWER
   DISTRIBUTION PANEL BOARD. RUN 2-#8 THW & 1-#10 THW GROUND IN ¾" PVC COATED
   GALVANIZED RIGID CONDUIT TO THE TRACED PIPES.
9. RUN 2-#12 THW & 1-#12 THW GROUND, ¾" PVC COATED RIGID GALVANIZED
   CONDUIT TO SWITCH AND LIGHT. PROVIDE CROUSE-HINDS NO. VWVSP150C24/120-LX WITH P21 GUARD
   STANCHION MOUNTED FIXTURE. MOUNT FIXTURE ON 6½" PVC COATED
   GALVANIZED RIGID CONDUIT SECURED TO CONTAINMENT WALL AT BOTTOM.
   MOUNT SWITCH ON SIDE OF STANCHION. (FUTURE)
10. SPARE.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
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DESIGNED BY	T DENDY /C GARMAN
CHECKED BY	T DENDY / R P SCHMIDT
SUPERVISOR	R P SCHMIDT
RELEASE DATE	
LEAD ENGR./SPEC.	R P SCHMIDT
INITIALS	
PROJECT	R. MARGUCCIO
APP. DATE	9/12/95
CLIENT	OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

ONE LINE DIAGRAM
POWER DISTRIBUTION PANELBOARD

SCALE	DRAWING NUMBER	REV.
NONE	594000-65U-03	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10265U03

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SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE

REDUCED PRINT SCALES
METRIC SCALES

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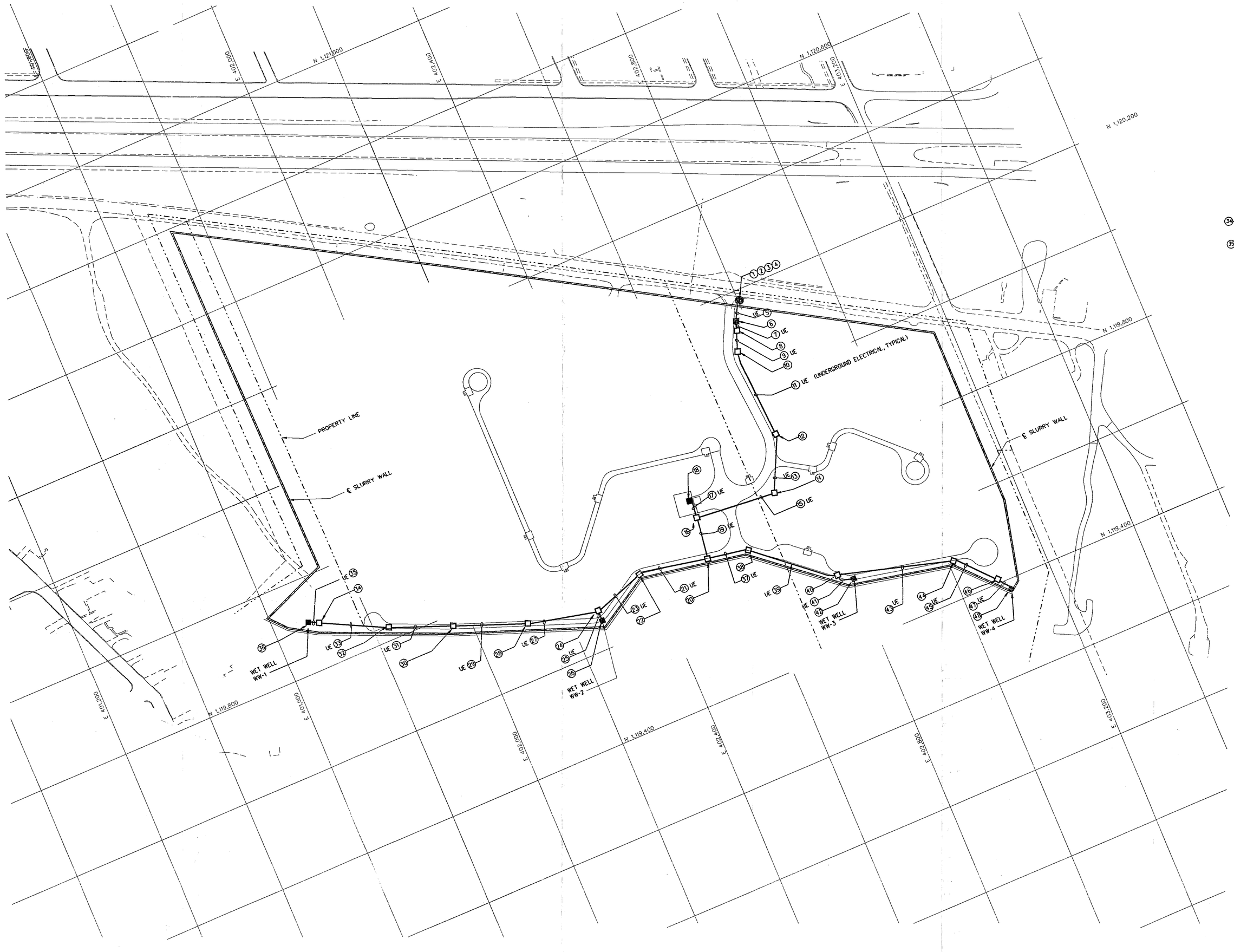

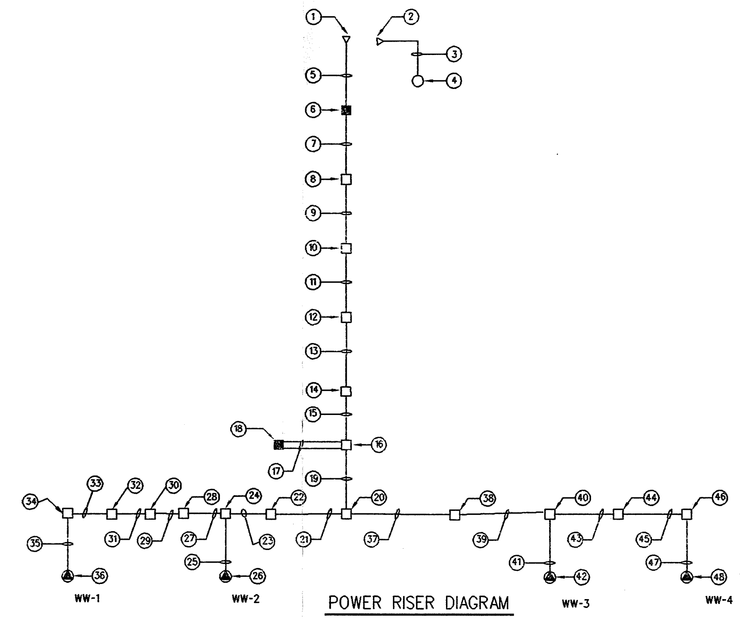

POWER RISER DIAGRAM

1. SERVICE ENTRANCE HEAD ON POLE, 2" SIZE, CROUSE-HINDS NO. F686. MOUNT APPROXIMATELY 20'-0" ABOVE GRADE.
2. METERING SERVICE ENTRANCE HEAD ON POLE, 1" SIZE, CROUSE-HINDS NO. F385. MOUNT APPROXIMATELY 20'-0" ABOVE GRADE. POWER COMPANY CURRENT TRANSFORMERS FOR METERING WILL BE LOCATED HERE.
3. APPROXIMATELY 20 FEET OF 1" GALVANIZED RIGID CONDUIT DOWN TO METER.
4. POWER COMPANY METER.
5. APPROXIMATELY 60 FEET OF 2-#4/0 THW & #2 THW NEUTRAL IN 2" SCHEDULE 40 RIGID PVC CONDUIT. CONDUIT TO BE RUN DOWN POLE, THEN BELOW FINISHED GRADE, THEN UP TO SERVICE ENTRANCE CIRCUIT BREAKER.
6. SERVICE ENTRANCE CIRCUIT BREAKER, SQUARE D NO. FAL22100 BREAKER (100AMP, TWO POLE) MOUNTED IN ENCLOSURE NO. FA100DS WITH NO. SN100FA GROUNDABLE NEUTRAL ASSEMBLY AND NO. H2100 HUBS. MOUNT CIRCUIT BREAKER ON GALVANIZED UNISTRUT FRAME. MOUNT UNISTRUT FRAME ON 24"x24"x12" DEEP CONCRETE SLAB, TOP OF SLAB TO BE 2" ABOVE FINISHED GRADE. GROUND NEUTRAL TO 5/8"x10'-0" COPPER CLAD GROUND ROD WITH #2 BARE COPPER WIRE. LOCATE CONCRETE SLAB ON LEVEL GROUND INSIDE FENCE.
7. APPROXIMATELY 20 FEET 2-#4/0 THW, #2 THW NEUTRAL & #4 THW EQUIPMENT GROUND IN 2" SCHEDULE 40 PVC CONDUIT. RUN CONDUIT BELOW FINISHED GRADE.
8. PULLBOX NO.1, PRE-CAST MANF. CO. NO. E-35 STATE PULLBOX SPB SERIES WITH STEEL DIAMOND PLATE BOLT DOWN COVER. TOP OF BOX TO BE 1" ABOVE GRADE.
9. APPROXIMATELY 50 FEET, SAME AS NOTE 7.
10. PULLBOX NO.2, SAME AS PULLBOX NO.1
11. APPROXIMATELY 200 FEET, SAME AS NOTE 7.
12. PULLBOX NO.3, SAME AS PULLBOX NO.1
13. APPROXIMATELY 130 FEET, SAME AS NOTE 7.
14. PULLBOX NO.4, SAME AS PULLBOX NO.1
15. APPROXIMATELY 160 FEET, SAME AS NOTE 7.
16. PULLBOX NO.5, PRE-CAST MANF. CO. NO. E-7 STATE PULLBOX SPB SERIES WITH STEEL DIAMOND PLATE BOLT DOWN COVER. TOP OF BOX TO BE 1" ABOVE FINISHED GRADE.
17. APPROXIMATELY 40 FEET 2-#4/0 THW, #2 THW NEUTRAL & #4 THW GROUND IN 2" CONDUIT AND 2-#2 THW & #6 THW GROUND IN 1½" CONDUITS. CONDUITS TO BE SCHEDULE 40 PVC RUN BELOW FINISHED GRADE.
18. POWER DISTRIBUTION PANELBOARD, CONSISTS OF:
    3-3HP STARTERS, SQUARE D CLASS 8536 TYPE SCO1V02 STARTER AND NO. FAL22025 (25 AMP, 2 POLE) CIRCUIT BREAKER (P-205, P-311, P-206)
    1-CONTACTOR TO STOP WELL PUMPS WHEN TANK IS FULL, SQUARE D CLASS 8502 TYPE SCO1V02 CONTACTOR AND NO. FAL22025 (25 AMP, 2 POLE) CIRCUIT BREAKER (P-201, P-202, P-203, P-204)
    4-CIRCUIT BREAKERS, SQUARE D NO. FAL12020 (20 AMP, 1 POLE)
    1-CIRCUIT BREAKER, SQUARE D NO. FAL22050 (50 AMP, 2 POLE)
    1-CIRCUIT BREAKER, SQUARE D NO. FAL12050 (50 AMP, 1 POLE)
    ALL OF ABOVE TO BE MOUNTED IN A HOFFMAN NO. A-72492SFG FREE STANDING, NEMA 4X ENCLOSURE. REFER TO ONE-LINE ENCLOSURE TO BE MOUNTED ON A CONCRETE SLAB. SEE DRAWING 594000-150-01.
19. APPROXIMATELY 85 FEET 2-#2 THW & 1-#6 THW GROUND IN 2" SCHEDULE 40 RIGID PVC CONDUIT. RUN CONDUIT BELOW FINISHED GRADE.
20. PULLBOX NO.6, SAME AS PULLBOX NO.1
21. APPROXIMATELY 165 FEET, SAME AS NOTE 19.
22. PULLBOX NO.7, SAME AS PULLBOX NO.1
23. APPROXIMATELY 130 FEET, SAME AS NOTE 19.
24. PULLBOX NO.8, SAME AS PULLBOX NO.1
25. APPROXIMATELY 20 FEET 2-#10 THW & 1-#10 THW GROUND IN ¾" PVC COATED RIGID GALVANIZED CONDUIT. INSTALL CROUSE-HINDS NO. EYS21 SEALING FITTING AT THE ENTRANCE TO THE VAULT.
26. EXPLOSION-PROOF RECEPTACLE, 240 VOLT, SINGLE PHASE, 20 AMP, CROUSE-HINDS NO. ENR31202 WITH NO. ENP0052 MALE PLUG. MOUNT ON INSIDE WALL OF VAULT.
27. APPROXIMATELY 165 FEET, SAME AS NOTE 19.
28. PULLBOX NO.9, SAME AS PULLBOX NO.1
29. APPROXIMATELY 160 FEET, SAME AS NOTE 19.
30. PULLBOX NO.10, SAME AS PULLBOX NO.1
31. APPROXIMATELY 150 FEET, SAME AS NOTE 19.
32. PULLBOX NO.11, SAME AS PULLBOX NO.1
33. APPROXIMATELY 160 FEET, SAME AS NOTE 19.
34. PULLBOX NO.12, SAME AS PULLBOX NO.1
35. APPROXIMATELY 20 FEET, SAME AS NOTE 25.
36. EXPLOSION-PROOF RECEPTACLE, SAME AS ITEM 26.
37. APPROXIMATELY 80 FEET, SAME AS NOTE 19.
38. PULLBOX NO. 13, SAME AS PULLBOX NO.1
39. APPROXIMATELY 210 FEET, SAME AS NOTE 19.
40. PULLBOX NO.14, SAME AS PULLBOX NO.1
41. APPROXIMATELY 20 FEET, SAME AS NOTE 25.
42. EXPLOSION-PROOF RECEPTACLE, SAME AS ITEM 26.
43. APPROXIMATELY 230 FEET, SAME AS NOTE 19.
44. PULLBOX NO.15, SAME AS PULLBOX NO.1
45. APPROXIMATELY 110 FEET, SAME AS NOTE 19.
46. PULLBOX NO.16, SAME AS PULLBOX NO.1
47. APPROXIMATELY 20 FEET, SAME AS NOTE 25.
48. EXPLOSION-PROOF RECEPTACLE, SAME AS ITEM 26.

NOTE 1: COORDINATE UNDERGROUND PULLBOX AND CONDUIT LOCATIONS WITH UNDERGROUND TELEPHONE PULLBOX AND CONDUIT LOCATIONS SEE DRAWING 594000-65U-02.

NOTE 2: CONTRACTOR TO VERIFY ALL CATALOG NUMBERS WITH LATEST EDITION OF MANUFACTURER'S CATALOG. ALL CATALOG NUMBERS ARE "OR EQUAL".

NOTE 3: WET WELL VAULT AREA CLASSIFICATION: CLASS 1, GROUP D, DIVISION 1

NOTE 4: ALL UNDERGROUND CONDUITS ARE SHOWN DIAGRAMATICALLY. ROUTE CONDUITS BELOW ROADS MINIMUM 24" DEEP AND ALL OTHER LOCATIONS MINIMUM 18" DEEP.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	TD	DRK
B	9/8/95	ENGINEERING REPORT SUBMITTAL (DRAFT FINAL)	TD	

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	T. DENDY/C GARMAN
CHECKED BY	T DENDY/ R P SCHMIDT
SUPERVISOR	R P SCHMIDT
RELEASE DATE	
LEAD ENGR./SPEC.	R P SCHMIDT
PROJECT	R. MARGUCCIO 9/15/95
CLIENT	OXYCHEM/OLIN
APP/DATE	

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

ELECTRICAL POWER PLAN

SCALE: 1"=80'

DRAWING NUMBER: 594000-65U-01

REV.: B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10265U01

METRIC SCALES
REDUCED PRINT SCALES
SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE
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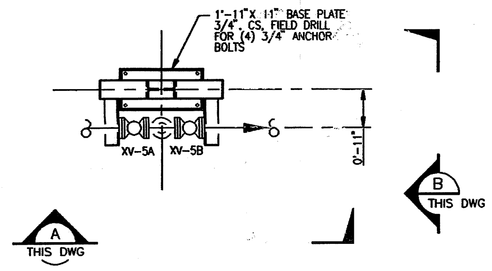
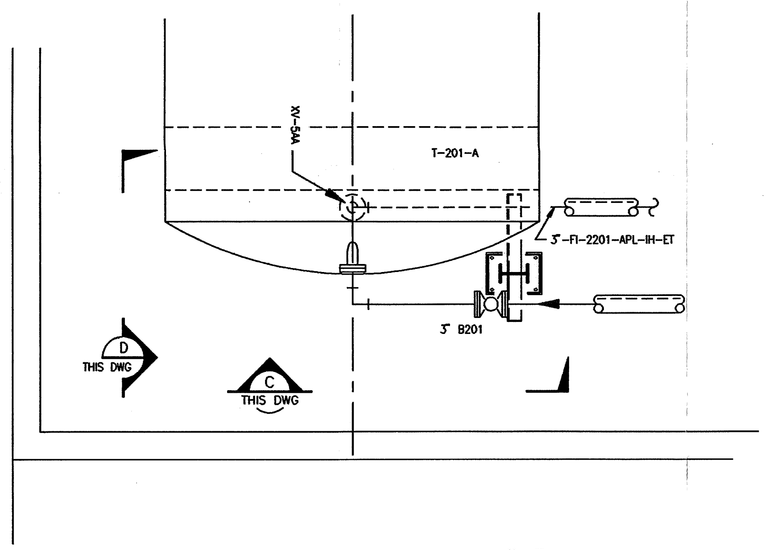


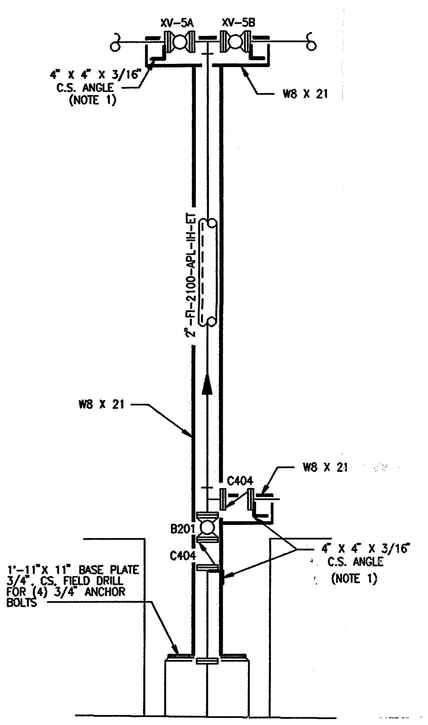
SUPPORT PLAN "A"

1/2"=1'-0"



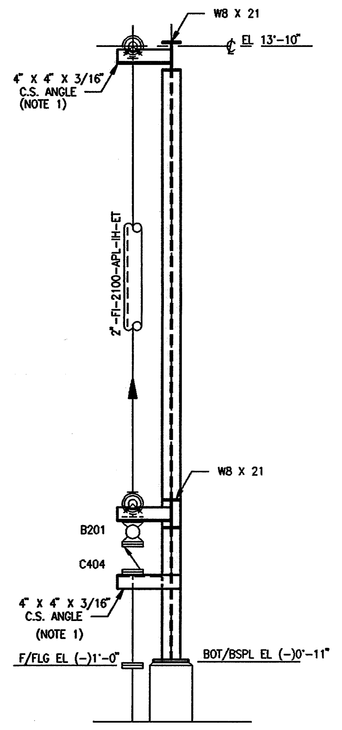
SUPPORT PLAN "B"

1/2"=1'-0"



SECTION A

1/2"=1'-0" THIS DWG

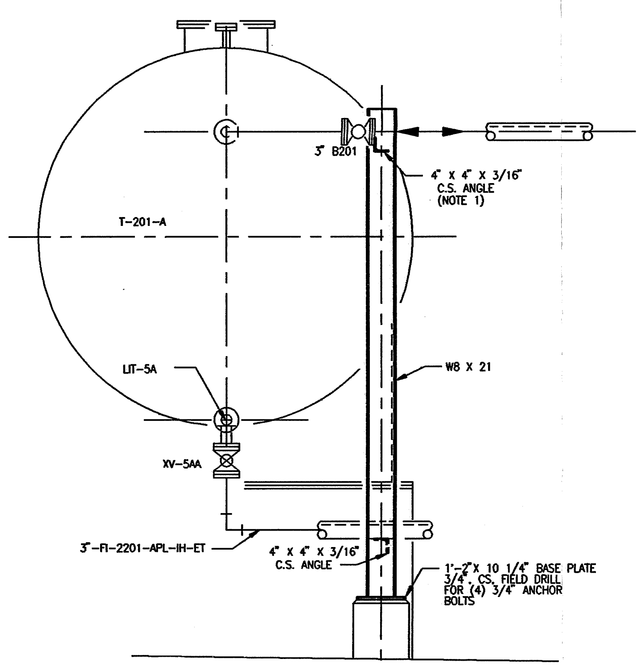


SECTION B

1/2"=1'-0" THIS DWG

SUPPORT DETAIL "A"

1/2" = 1'-0"



SECTION C

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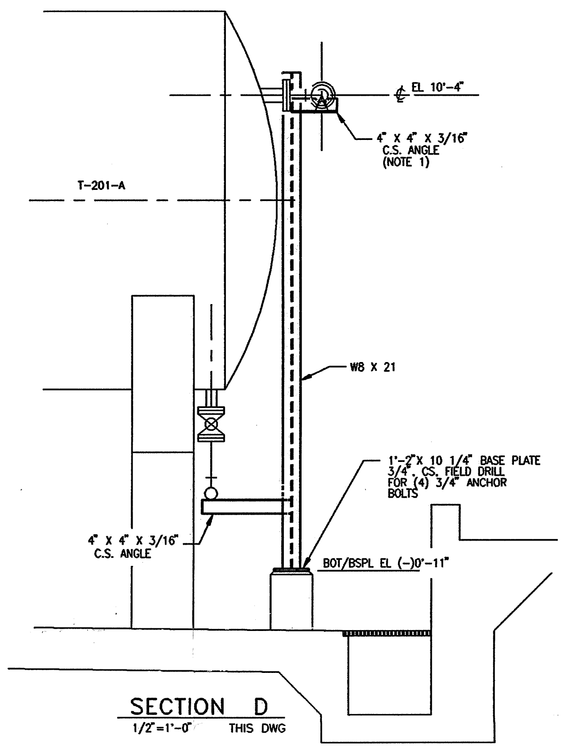

SECTION D

1/2"=1'-0" THIS DWG

SUPPORT DETAIL "B"

1/2" = 1'-0"

NOTES

1. ANGLES SHALL BE COPED TO MATCH PIPE DIAMETER AND DRILLED TO MATCH BOLT PATTERN OF FLANGE.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS
A	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	CDC ACB	MM 9/11									

FLUOR DANIEL

OPS-CENTER

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DESIGNED BY	C. CAMPBELL
CHECKED BY	A. BUMB
SUPERVISOR	J. GERVAIS
APP.DATE	
LEAD ENGR./SPECIALIST	A. BUMB
INITIALS	
PROJECT	R. MARGUCCIO 9/13/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
PIPE SUPPORT DETAILS
SECTIONS AND DETAILS

SCALE	DRAWING NUMBER	REV.
AS NOTED	594000-55N-02	A

+DATE+TIME+ MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CAD DRAWING No. 55N01.DWG 8/29/95

P:\ESBU\23594000\PIP\55N02.DWG 09/07/95 13:59:02 CAMP7706

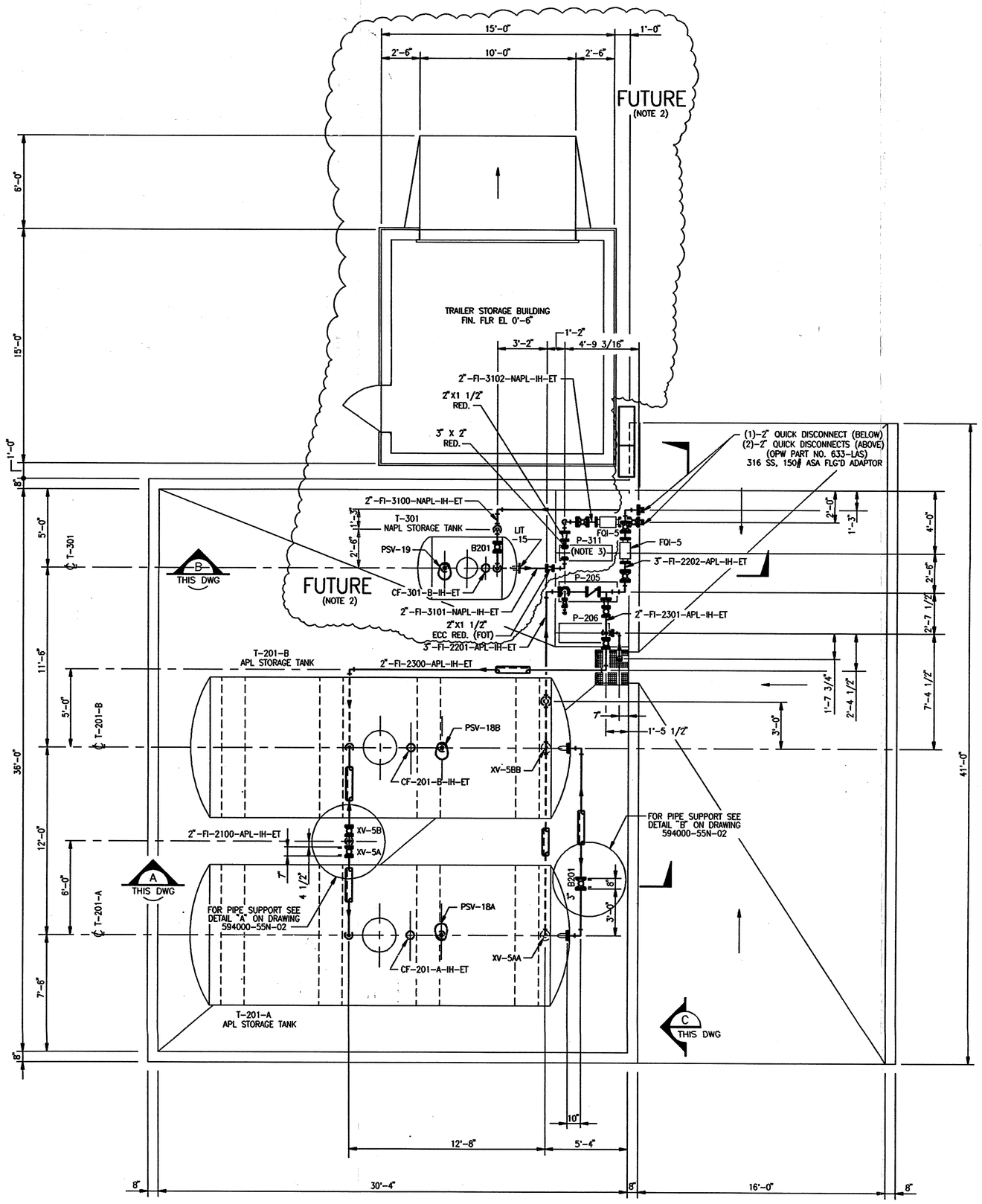
Thu Sep 7 14:59:37 1995 K:\plotsa\sgueue\BONDPLT.def J:\PLOTSA\BOND\55N02.PLT

REDUCED PRINT SCALES 1/4" 3/8" 1/8"

METRIC SCALES 1:33 1:25 1:50

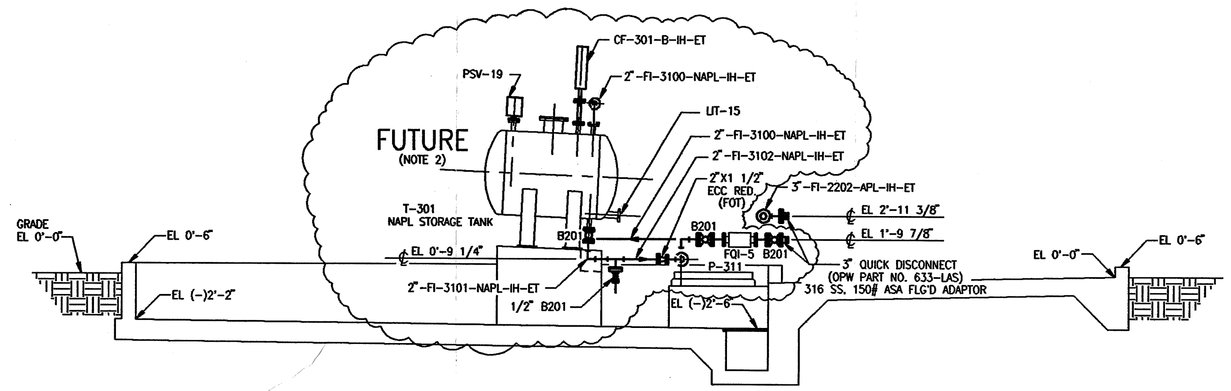
REDUCED PRINT SCALES CONTRACT PKG. WRK. PKG. DIST.CODE

_E.DWG 91/05/31



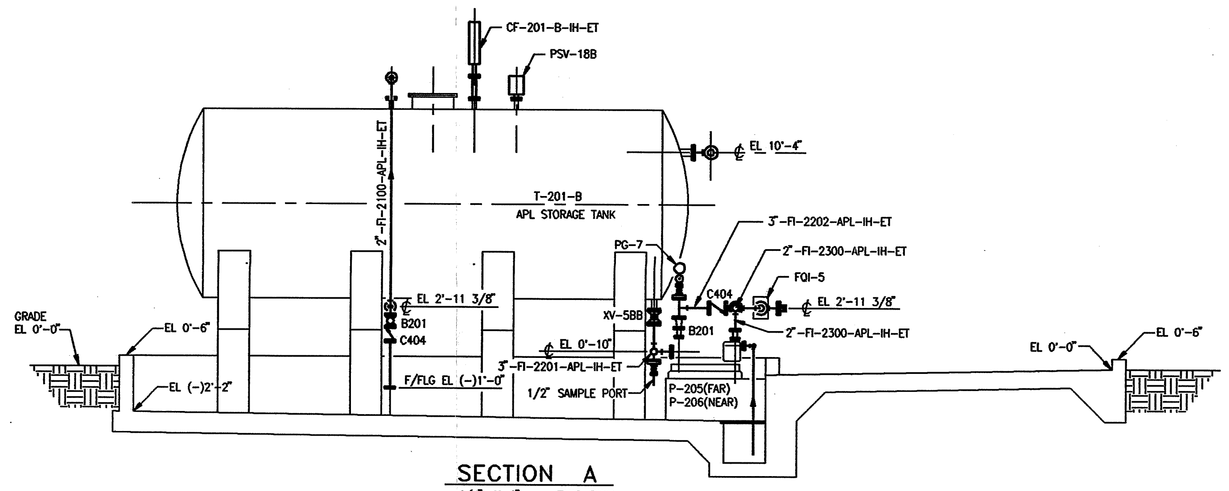
PIPING ARRANGEMENT PLAN

1/4" = 1'-0"



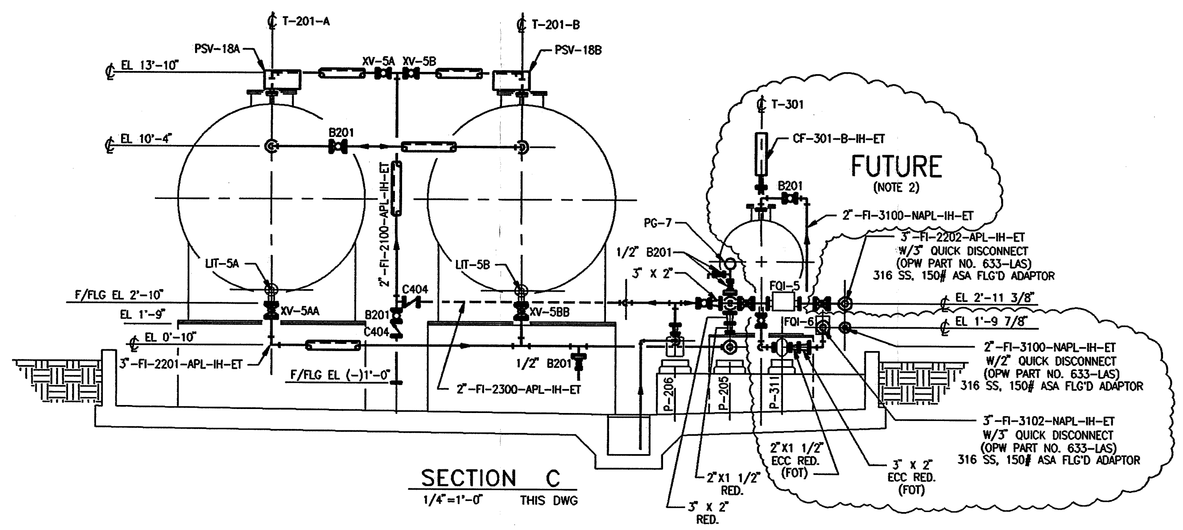
SECTION B

1/4"=1'-0" THIS DWG



SECTION A

1/4"=1'-0" THIS DWG



SECTION C

1/4"=1'-0" THIS DWG

PIPING MATERIAL SPECIFICATIONS

PIPE:		
	2"-4"	FILAMENT WOUND FRP VINYL ESTER, ASTM D2996,RTRP-12EF, BELL X SPIGOT ENDS, 30 TO 35 MILS RESIN RICH LINER (HETRON 980 RESIN OR APPROVED EQUAL), SMITH FIBERGLASS PRODUCTS INC. "POLY THREAD" OR APPROVED EQUAL.
	1/2"-1 1/2"	SCHEDULE 40S STAINLESS STEEL, SEAMLESS OR EFW, FULL FINISH PLAIN ENDS, ASTM A312 TP-316L.
FITTINGS:		
	2"-4"	COMPRESSION MOLDED VINYL ESTER, 39% CHOPPED GLASS FIBER, ASTM D2996, RTRP-12EF, BELL X BELL ENDS, 30 TO 35 MILS RESIN RICH LINER (HETRON 980 RESIN OR APPROVED EQUAL),SMITH FIBERGLASS PRODUCTS INC "POLY THREAD" OR APPROVED EQUAL.
	1/2"-1 1/2"	ANSI 3000# CLASS, SOCKET WELD END, FORGED STAINLESS STEEL, ASTM-A182, GR. F-316L ANSI B16.11.
FLANGES:	2"-4"	150# FF, COMPRESSION MOLDED VINYL ESTER, SOCKET END, 39% CHOPPED GLASS FIBER, ASTM D2996, RTRP-12EF, 30 TO 35 MILS RESIN RICH LINER (HETRON 980 RESIN OR APPROVED EQUAL), SMITH FIBERGLASS PRODUCTS INC "POLY THREAD" OR APPROVED EQUAL.
	1/2"-1 1/2"	150#, ANSI, FF, SO FLANGE, STAINLESS STEEL, ASTM A-182, TYPE 316L.
GASKETS:	ALL	VITON, 150# FULL FACE, 1/8" THK, 60 TO 70 DUROMETER.
ADHESIVE:	ALL	SMITH FIBERGLASS PRODUCTS INC., KIT NUMBER DS9014 OR APPROVED EQUAL.
BRANCH CONN:	2"-4"	TEES OR LATERALS WITH CONCENTRIC OR ECCENTRIC REDUCERS.
	1/2"-1 1/2"	SOCKET WELD TEE (FULL SIZE OR REDUCING)
BOLTING:	ALL	ASTM A-193 GRADE B7 ALLOY STEEL, STUD BOLTS W/2 ASTM A-194 GRADE 2H HEAVY HEX NUTS EACH.
WASHERS:	ALL	CARBON STEEL FLAT WASHERS, GALVANIZED. (THE USE OF WASHERS IS REQUIRED FOR THE BEARING SURFACE OF ALL NUTS IN CONTACT WITH FIBERGLASS FLANGES.)
VALVES:		
B201	BALL VALVES	CAST 316 STAINLESS STEEL BALL VALVE, BODY ASTM A351, GRADE CF8M, 316 STAINLESS STEEL BALL AND STEM, SEATS AND SEALS TEFLON (TFE), BLOWOUT-PROOF STEM, 150# FLAT FACE FLANGED ENDS, HANDLE OPERATED. JAMESBURY MODEL #5150 OR APPROVED SUBSTITUTE.
G301	GLOBE VALVES	CAST 316 STAINLESS STEEL GLOBE VALVE, BODY ASTM A351, GRADE CF8M, 316 STAINLESS STEEL TRIM, BOLTED BONNET WITH RENEWABLE PLUG-TYPE DISC, INTEGRAL SEAT, 150# FLAT FACE FLANGED ENDS, DESIGNED TO ANSI B16.34/B16.10, CRANE-ALOYCO MODEL #317-FF OR APPROVED SUBSTITUTE.
C404	CHECK VALVES	CAST 316 STAINLESS STEEL HORIZONTAL/VERTICAL SWING CHECK VALVE, BODY ASTM A351, GRADE CF8M, 316 STAINLESS STEEL TRIM, BOLTED COVER, INTEGRAL SEAT, 150# FLAT FACE FLANGED ENDS, DESIGNED TO ANSI B16.34/B16.10, CRANE-ALOYCO MODEL #377-FF OR APPROVED SUBSTITUTE.

INSULATION MATERIAL SPECIFICATIONS

MATERIAL TYPE:	INSULATION	CELLULAR GLASS (FOAMGLASS), ASTM C552, PITTSBURGH CORNING OR APPROVED EQUAL. INSULATION THICKNESS FOR PIPING ON THIS DRAWING TO BE 1" FOR ALL LINES INDICATED "IH-ET".
	JACKET	ALUMINUM ROLL, (0.006 – 0.010), CORRUGATED, (CHILDERS, PABCO, TECHALLOY, ETC.)
	FASTENERS:	
	INSULATION	16 GEORGIA TIE WIRE, TYPE 304 STAINLESS STEEL, ON 12" MAX. SPACING
	JACKET	1/2" BY 0.020" BANDS, TYPE 304 STAINLESS STEEL, (CHILDERS EDGE-SAF), ON 12" MAX. SPACING SCREWS, SELF TAPPING, SLOTTED HEX HEAD SHEET METAL, 18-8 CR-NI STAINLESS STEEL AISI TYPE 302 OR 304, NUMBER 8 BY 1/2" LONG.
	STANDARD ACCESSORY MATERIAL:	FLASHING/CAULKING COMPOUND SHALL BE NONSHRINKING, PERMANENTLY FLEXIBLE, METALIC GRAY, 94% NONVOLATILE, WITH A WATER VAPOR PERMEABILITY OF 0.008 AS SPECIFIED BY ASTM-E96, FOR SERVICE FROM MINUS 100 DEGREES F TO 300 DEGREES F. WEATHERPROOFING MASTIC SHALL BE A WATER BASE EMULSION, BREATHING TYPE. VINYL ACRILYC OR POLYVINYL ACETATE, NONFLAMMABLE IN THE UNCURED STATE, FLAME SPREAD LESS THAN 25 WHEN CURED, COLOR TO BE GRAY, FOR SERVICE TO 180 DEGREES F. INSULATING AND FINISHING CEMENT SHALL BE COMPOSED OF MINERAL FIBER PELLETS AND INSULATING FILLERS, BLENDED WITH HYDRAULIC SETTING BINDERS AND CORROSION INHIBITORS AND SHALL CONFORM TO ASTM-C449.

REFERENCE:

ASTM C449	SPECIFICATION FOR MINERAL FIBER HYDRAULIC SETTING THERMAL INSULATING AND FINISHING CEMENT
ASTM C552	SPECIFICATION FOR CELLULAR GLASS BLOCK AND PIPE THERMAL INSULATION
ASTM C585	RECOMMENDED PRACTICE FOR INNER AND OUTTER OF RIGID THERMAL INSULATION FOR NOMINAL SIZES OF PIPE AND TUBING
ASTM C1094	SPECIFICATION FOR REMOVABLE COVERS
ASTM E84	WATER VAPOR TRANSMISSION OF MATERIALS IN SHEET FORM
ASTM E96	SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

GENERAL NOTES

1. DIMENSIONS SHOWN ON THIS DRAWING ARE BASED ON PRELIMINARY VENDOR INFORMATION FOR EQUIPMENT AND INSTRUMENTATION. ALL DIMENSIONS TO BE VERIFIED WITH CERTIFIED VENDOR DRAWINGS PRIOR TO FABRICATION OF PIPE.
2. PIPING AND INSTRUMENTATION ASSOCIATED WITH T-301 (NAPL STORAGE TANK) AND P-311 (NAPL TRANSFER PUMP) WILL BE INSTALLED LATER.
3. P-311 (NAPL TRANSFER PUMP) HAS 1 1/2" MALE NPT CONNECTIONS AT INLET AND DISCHARGE. USE 1 1/2" 150#, FLAT FACE THREADED FLANGE, 316 SS, TO ADAPT TO FRP PIPE.
4. ALL INSTRUMENTATION AND MANUAL VALVES TO BE FIELD SUPPORTED FROM CONCRETE PIERS BY CONNECTION AT FLANGES. ANGLES (4"X4"X3/16") SHALL BE COPED TO MATCH PIPE DIAMETER AND DRILLED TO MATCH BOLT PATTERN OF FLANGE, SIMILAR TO APPLICATION IN SUPPORT DETAIL "A" ANB "B" ON DRAWING 594000-55N-02.
5. ALL PIPING TO BE ADEQUATELY FIELD SUPPORTED TO PROTECT CEMENT JOINTS IN THE FRP PIPING, TANK AND EQUIPMENT NOZZLES.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	CLC Ash	

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	C. CAMPBELL
CHECKED BY	A. BUMB
SUPERVISOR	J. GERVAIS
LEAD ENGR./SPECIALIST	A. BUMB
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
PIPING ARRANGEMENT PLAN
SECTIONS AND DETAILS

SCALE: AS NOTED
DRAWING NUMBER: 594000-55N-01
REV.: A

CAD DRAWING No. 55N01.DWG 8/29/95

*DATE*TIME* MANUAL CHANGES MADE – YES ☐ NO ☐ DWG. FILE UPDATED – YES ☐ NO ☐ MODEL UPDATED – YES ☐ NO ☐

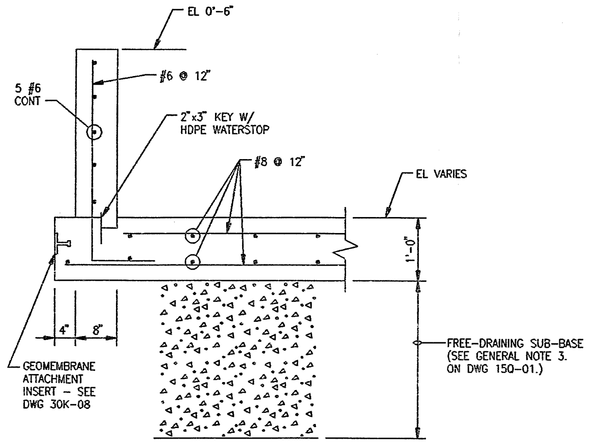
P:\ESBU\23594000\PIP\55N01.DWG 09/07/95 13:57:30 CAMP7706

FD_E.DWG 91/05/31

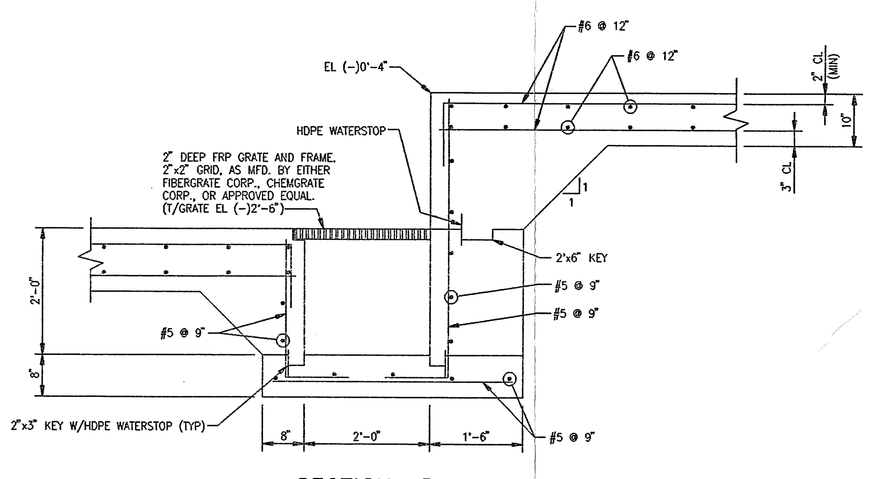
REDUCED PRINT SCALES 1/8" K:\plotter\user\BONDPLT.scf J:\PLOTG1\BOND\55N01.PLT Thu Sep 7 14:55:52 1995

METRIC SCALES 1:25 1:33 1:50

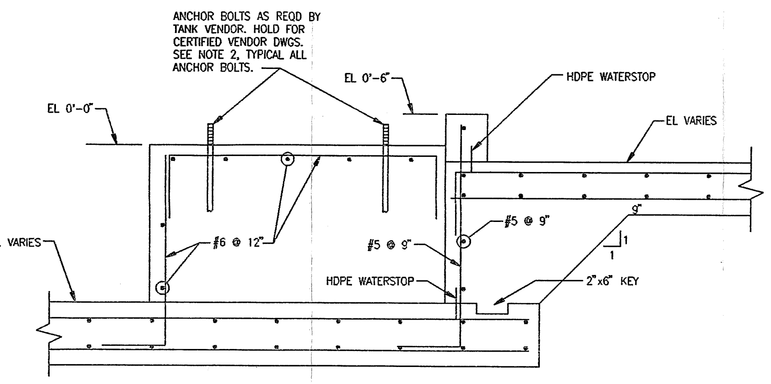
REDUCED PRINT SCALES CONTRACT PKG. WRK. PKG. DIST.CODE



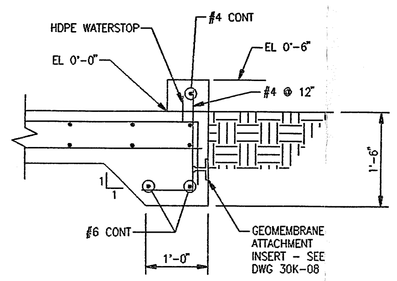
SECTION A
3/4"=1'-0" 150-01



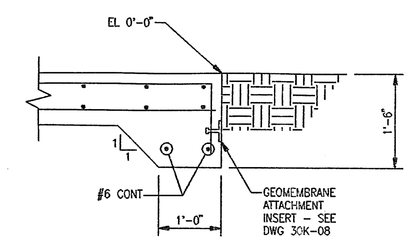
SECTION B
3/4"=1'-0" 150-01



SECTION C
3/4"=1'-0" 150-01

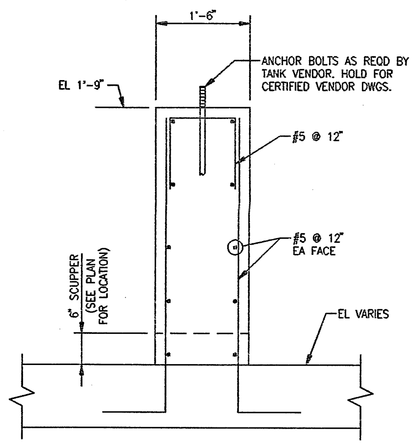


SECTION D
3/4"=1'-0" 150-01

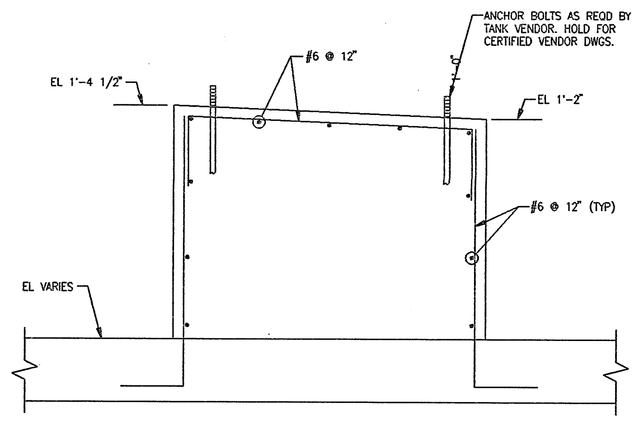


SECTION E
3/4"=1'-0" 150-01

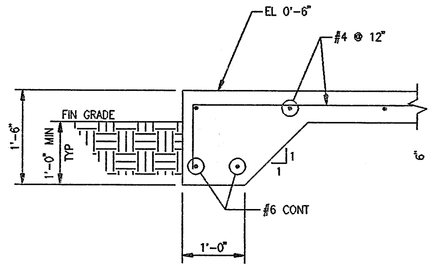
NOTES:
1. WORK THIS DRAWING WITH DRAWING 594000-150-01.
2. ANCHOR BOLT SIZE, LOCATION AND PROJECTION WILL BE BY THE TANK VENDOR. EMBEDMENT AND BOLT MATERIAL WILL BE BY THE ENGINEER.



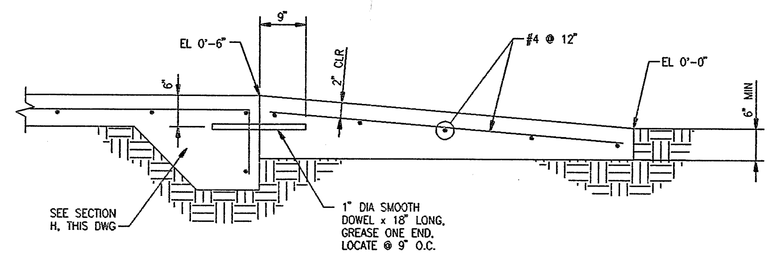
SECTION F
3/4"=1'-0" 150-01



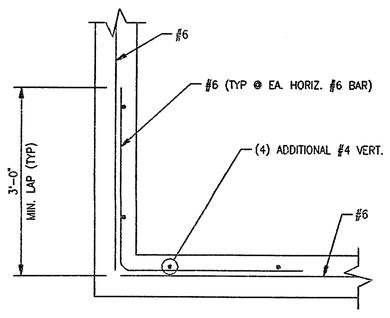
SECTION G
3/4"=1'-0" 150-01



SECTION H
3/4"=1'-0" 150-01



SECTION J
3/4"=1'-0" 150-01



TYPICAL CORNER REINFORCING
DETAIL 1
3/4"=1'-0" 150-01

REV.	DATE	REVISION DESCRIPTION	DES.	CHC	RAL	HGC	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)					DRU
B	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)					JTG

REV.	DATE	REVISION DESCRIPTION	DES.	CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	H.G. CULBREATH
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
APP.DATE	
LEAD ENGR./SPECIALIST	H.G. CULBREATH
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	1/29/93
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
CONCRETE SECTIONS AND DETAILS

SCALE	DRAWING NUMBER	REV.
AS NOTED	594000-150-02	B

CAD DRAWING No. 10215002 11/17/92

*DATE*TIME* MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐

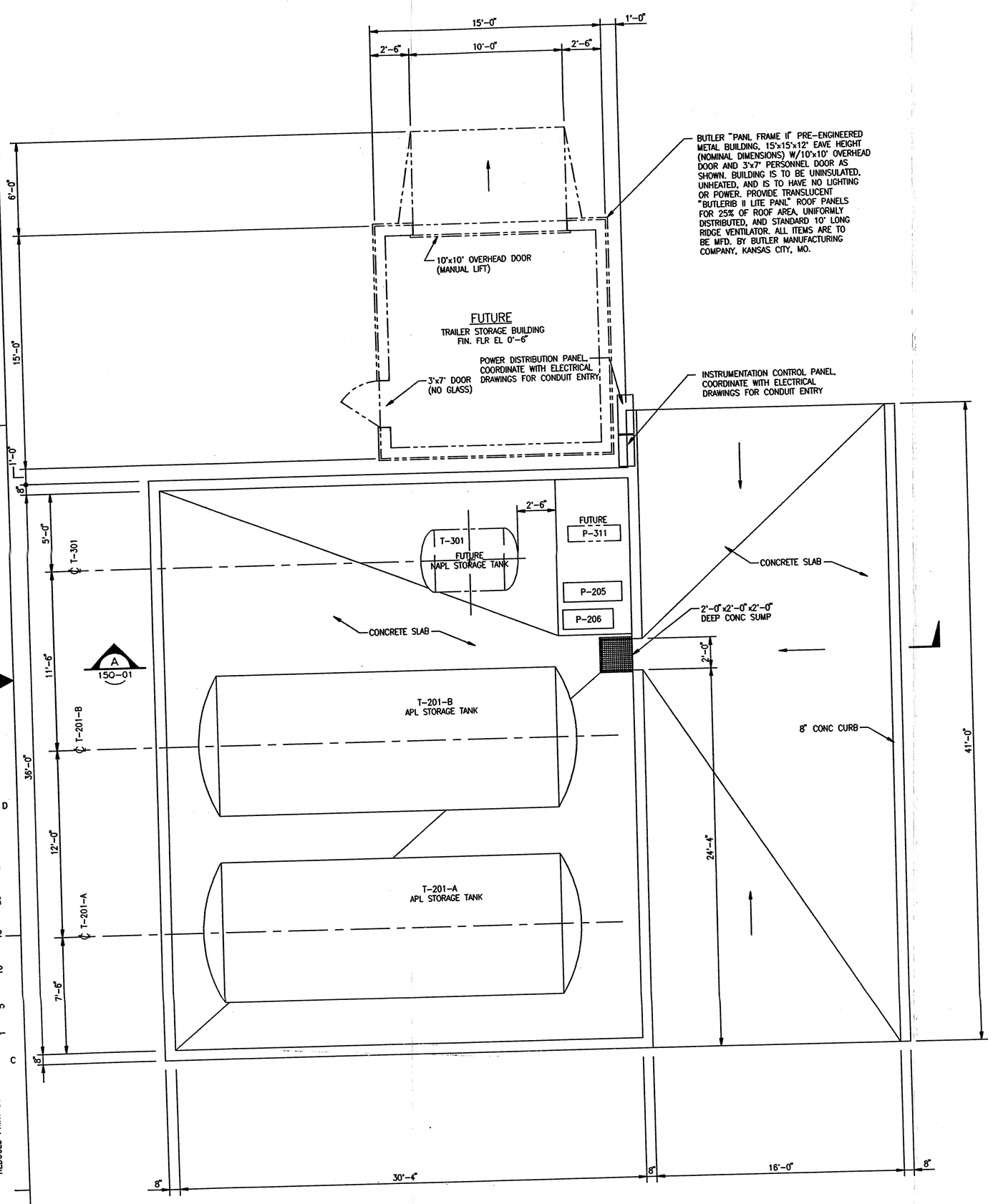
CONTRACT PKG.
WRK. PKG.
DIST.CODE

Typical for Chart Liners - Not Signed

P:\ESBU\23594000\STRU\10215002.DWG 01/25/93 14:01:16 RLESLIE

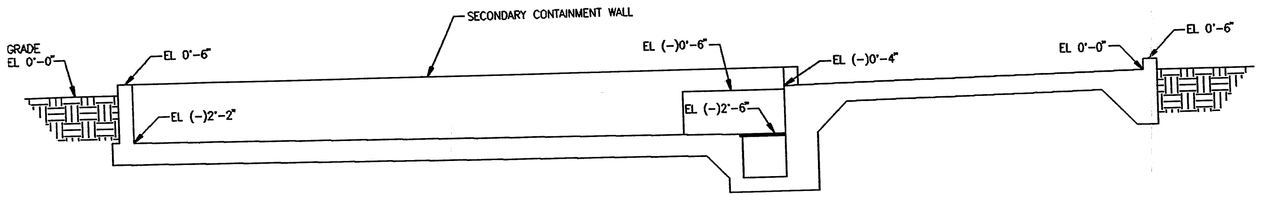
J:\PLOTC1\BOND\10215002.PLT 25 Aug 95 17:17:20 1995 K:\plots\queue\BONDPLT.def

EM_E.DGN 01/05/31



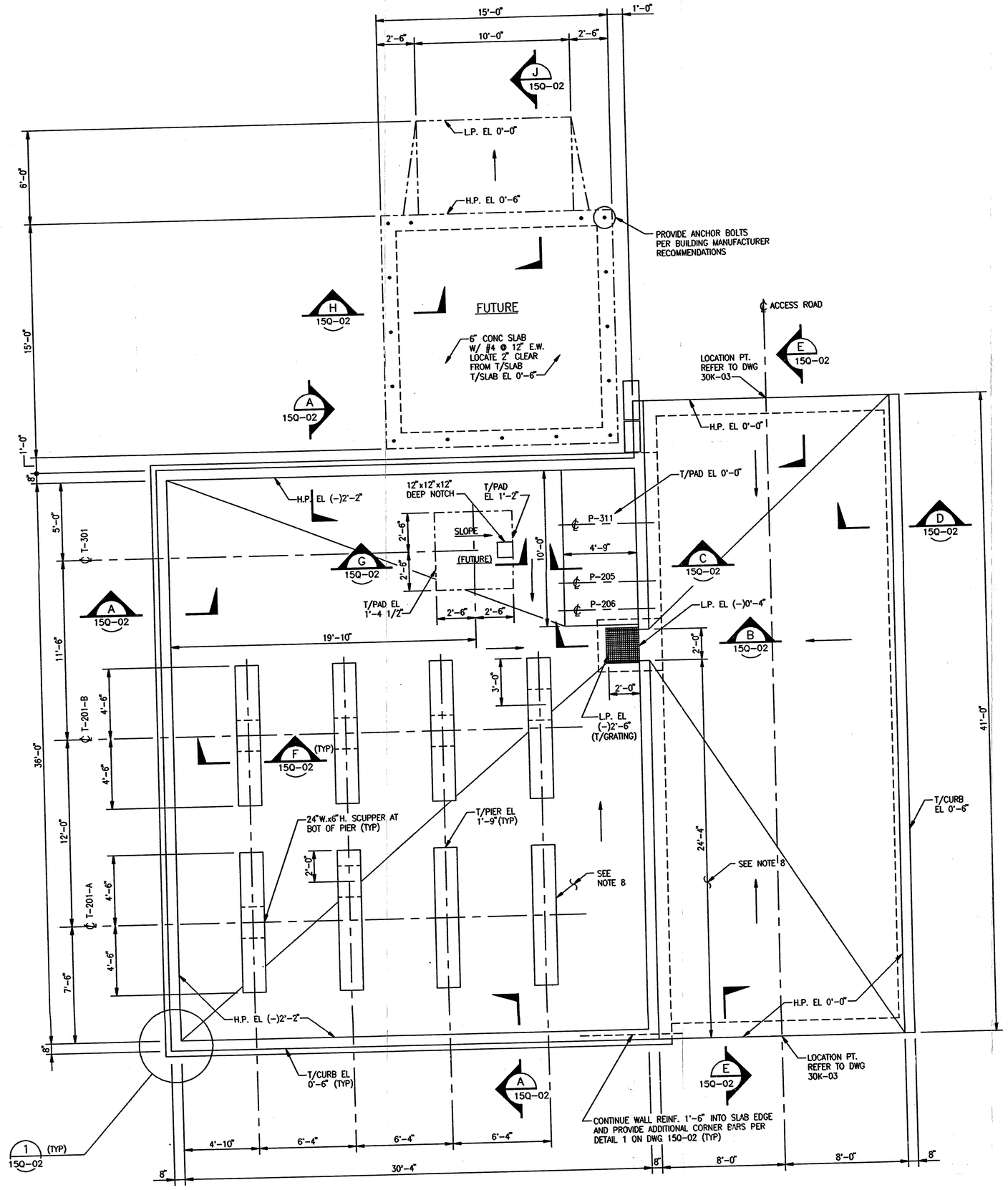
GENERAL ARRANGEMENT PLAN

1/4" = 1'-0"



SECTION A

1/4"=1'-0" 150-01



FOUNDATION PLAN

1/4" = 1'-0"

(FINISH GRADE REF EL 0'-0" = EL 584.5')

GENERAL NOTES / DESIGN CRITERIA

1. ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE 1993 BOCA NATIONAL BUILDING CODE, INCLUDING REVISIONS, AS IT APPLIES TO THE PROJECT LOCATION (NIAGARA FALLS, NEW YORK).
2. STRUCTURAL DESIGN LOADS SHALL BE IN ACCORDANCE WITH ASCE 7-93 (FORMERLY ANSI 58.1) UNLESS STATED OTHERWISE ON THE DRAWINGS. SPECIFIC LOADS ARE AS FOLLOWS:

WIND SPEED	70 MPH
SEISMIC ZONE	2
ROOF LIVE LOAD	40 PSF (SNOW)
TRUCK ACCESS SLAB	AASHTO HS-20 (32 KIP AXLE)

3. ALL STRUCTURES SHOWN SHALL BE CONSTRUCTED OVER A FREE-DRAINING SUB-BASE COMPOSED OF ASTM C33 NO. 57 STONE, PLACED TO A MINIMUM DEPTH OF 30 INCHES BELOW THE SURROUNDING GRADE ELEVATION, OR 30 INCHES BELOW LOWEST POINT OF THE STRUCTURE SURFACE EXPOSED TO SUB-FREEZING TEMPERATURES, WHICHEVER IS DEEPER.

MATERIALS CRITERIA

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301-89 & ACI 302.1R-89. ALL CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI, AND MAXIMUM SLUMP OF 4 INCHES. SLABS ARE TO HAVE A LIGHT BROOM FINISH. ALL CEMENT SHALL BE ASTM C150, TYPE I. MAXIMUM WATER-CEMENT RATIO TO BE 0.40.
2. STEEL REINFORCING FOR CONCRETE SHALL CONFORM TO ASTM A615, GRADE 60. ALL LAP SPLICES SHALL BE MINIMUM 36 BAR DIAMETERS UNLESS NOTED OTHERWISE.
3. ALL CONCRETE CONSTRUCTION JOINTS ARE TO HAVE CONTINUOUS WATERSTOPS CONSISTING OF A HIGH-DENSITY POLYETHYLENE (HDPE) STRIP, 6" WIDE x 0.25" THICK, WITH 3" EMBEDMENT ON EACH SIDE OF THE JOINT AND 3" CONCRETE COVER, MEASURED FROM THE INTERIOR FACE OF THE CONCRETE.
4. SUMP GRATING COVER AND SUPPORT FRAME SHALL BE CONSTRUCTED OF FIBER REINFORCED PLASTIC (FRP), AS SUPPLIED BY THE INDICATED MANUFACTURERS.
5. TRAILER STORAGE BUILDING SHALL BE DESIGNED FOR THE LOADS SPECIFIED ON THIS DRAWING, IN ACCORDANCE WITH SPECIFIED CODES.
6. ANCHOR BOLTS SHALL BE ASTM A36 GALVANIZED STEEL, OR HILTI "HVA" ADHESIVE STAINLESS STEEL ANCHORS, AS MANUFACTURED BY THE HILTI CORPORATION, OR ENGINEER APPROVED EQUAL.
7. ALL GROUT SHALL BE HIGH-STRENGTH, NON-METALLIC, NON-SHRINK, CEMENTITIOUS GROUT, EITHER "FIVE STAR GROUT", MFD. BY U.S. GROUT CORP., OR "MASTERFLOW 713", MFD. BY MASTERBUILDERS, INC.
8. WET CURE ALL EXPOSED CONCRETE FLOOR SURFACES WITH A MOISTURE RETAINING FABRIC FOR A MINIMUM OF 14 DAYS. AT ALL EXPOSED CONCRETE SURFACES, PROVIDE EUCO DIAMOND HARD LIQUID DENSIFIER AND SEALER IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AS MANUFACTURED BY THE EUCLID CHEMICAL COMPANY, PH (216) 531-9222.

NOTE:

ALL EQUIPMENT SUPPORT DIMENSIONS ARE TO BE VERIFIED WITH CERTIFIED EQUIPMENT VENDOR DRAWINGS PRIOR TO CONSTRUCTION.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	RAL HGC	DRK
B	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	HGC	

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

*DATE*TIME* MANUAL CHANGES MADE – YES ☐ NO ☐ DWG. FILE UPDATED – YES ☐ NO ☐ MODEL UPDATED – YES ☐ NO ☐

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	H.G. CULBREATH
CHECKED BY	J. GERWIS/A. BUMB 9/13/95
SUPERVISOR	J. GERWIS
APP.DATE	
LEAD ENGR./SPECIALIST	H.G. CULBREATH
INITIALS	
PROJECT	R. MARSUCCIO 9/13/95
APP.DATE	
CLIENT	OXYCHEM/OLIN

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
GENERAL ARRANGEMENT PLAN AND FOUNDATION PLAN

SCALE	DRAWING NUMBER	REV.
AS NOTED	594000-150-01	B

CAD DRAWING No. 10215001 11/17/92

P:\ESBU\23594000\STRU\10215Q01.DWG 09/06/95 1500 BJWHITFIELD

REDUCED PRINT SCALES 1/8" 1/4" 3/8" METRIC SCALES 1:33 1:25 1:50 CONTRACT PKG. WRK. PKG. DIST.CODE

PLOTTED: Thu Sep 7 12:48:54 1995 K:\PLOTS\GUEST\BONDPLT.SET J:\PLOTS\BOND\10215001.PLT

T-301
NAPL STORAGE TANK
500 GAL
FRP IH-ET

CF-301
CARBON FILTER
10 LB. VAPOR PHASE CARBON
IH-ET

P-311
NAPL TRANSFER PUMP
20 GPM, 30 FT TDH
2 HP, 230V, 1 PHASE
316SS IH-ET

DK-201
CONCRETE CONTAINMENT DIKE
(SEE DWG 150-01)

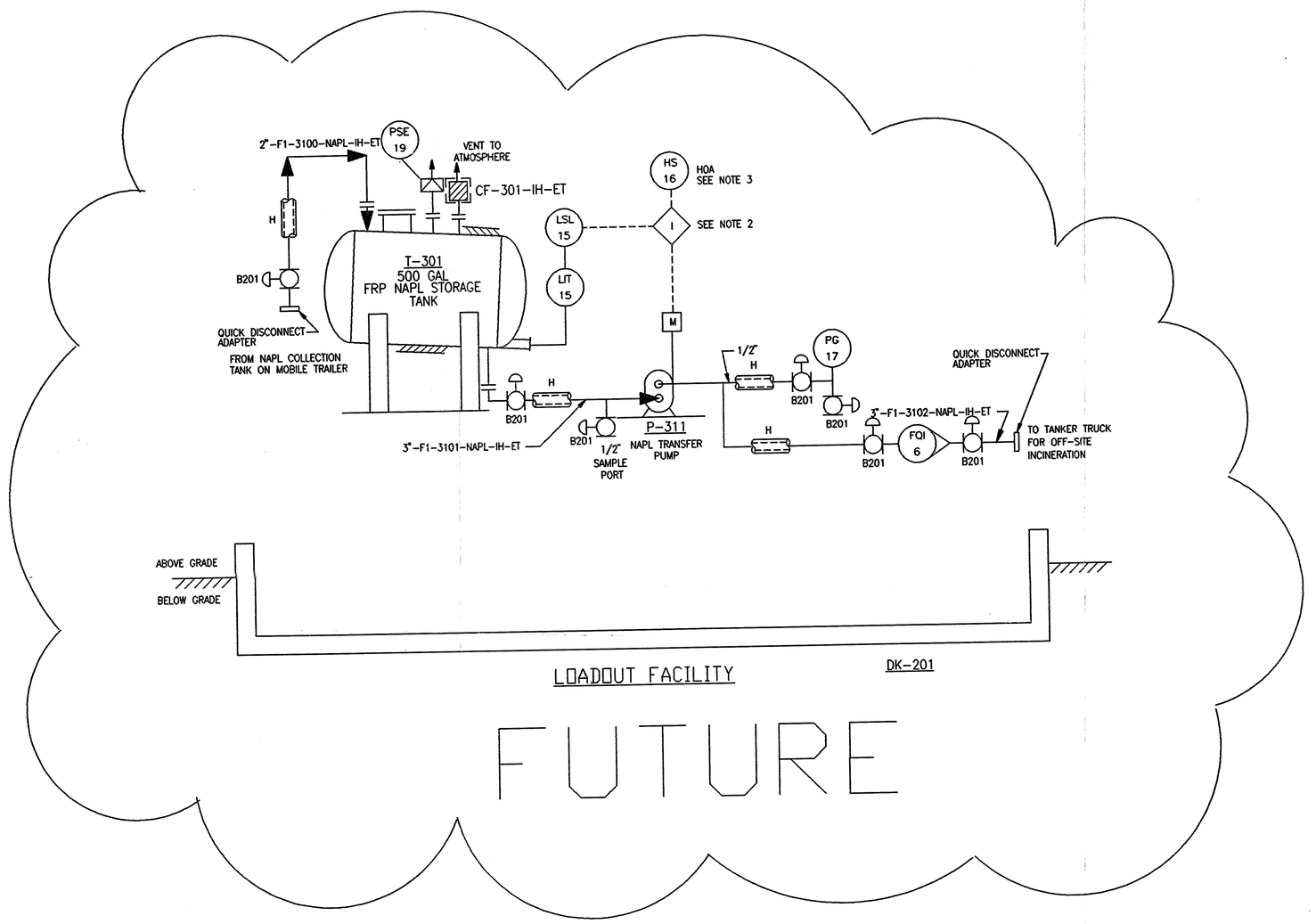
NR-01 THROUGH NR-10
NAPL RECOVERY WELLS

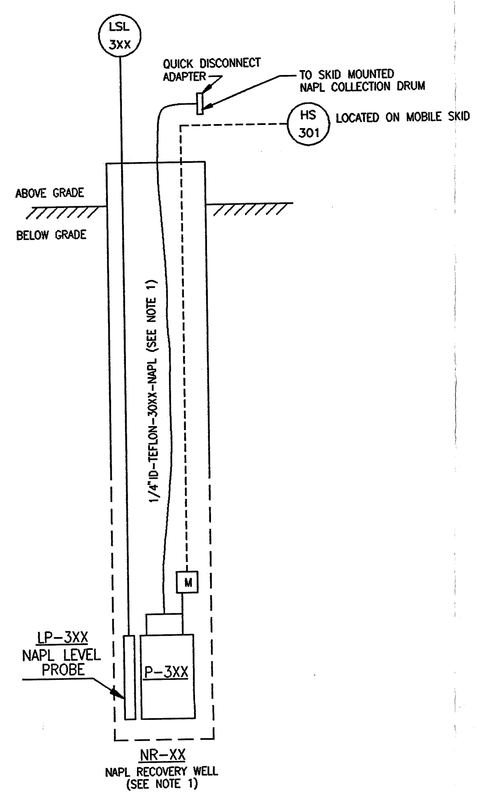
P-301 THROUGH P-310
NAPL PUMPS
0.2 GPM, 75 PSI TDH
12 VDC
NICKEL ALLOY GEARS

LP-301 THROUGH LP-310
NAPL LEVEL PROBES

NOTES:

1. XX REPRESENTS NAPL RECOVERY WELL NUMBERS 01 THROUGH 10.
2. LOW LEVEL IN THE NAPL STORAGE TANK WILL TURN POWER OFF TO THE NAPL TRANSFER PUMP, P-311.
3. HAND OFF AUTO SELECTOR SWITCH ALLOWS MAINTENANCE BY-PASS OF LEVEL CONTROLS. SPRING RETURN FROM HAND POSITION.





REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1-29-93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ACB JG	DRK					
B	9-08-95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	Ack Ack						

DWG NO.	REFERENCE DRAWINGS	DWG NO.	REFERENCE DRAWINGS

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	A.BUMB	
CHECKED BY	J.GERVAIS	
SUPERVISOR	J.GERVAIS	APP.DATE
LEAD ENGR/SPECIALIST	A.BUMB	INITIALS
PROJECT	R.MARGUCCIO	APP.DATE 9/13/95
CLIENT	OXYCHEM/OLIN	APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

PIPING & INSTRUMENTATION DIAGRAM
NAPL SYSTEM

SCALE: NONE
DRAWING NUMBER: 594000-25J-03
REV.: B

*DATE*TIME* MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐

CAD DRAWING No. 10225J03

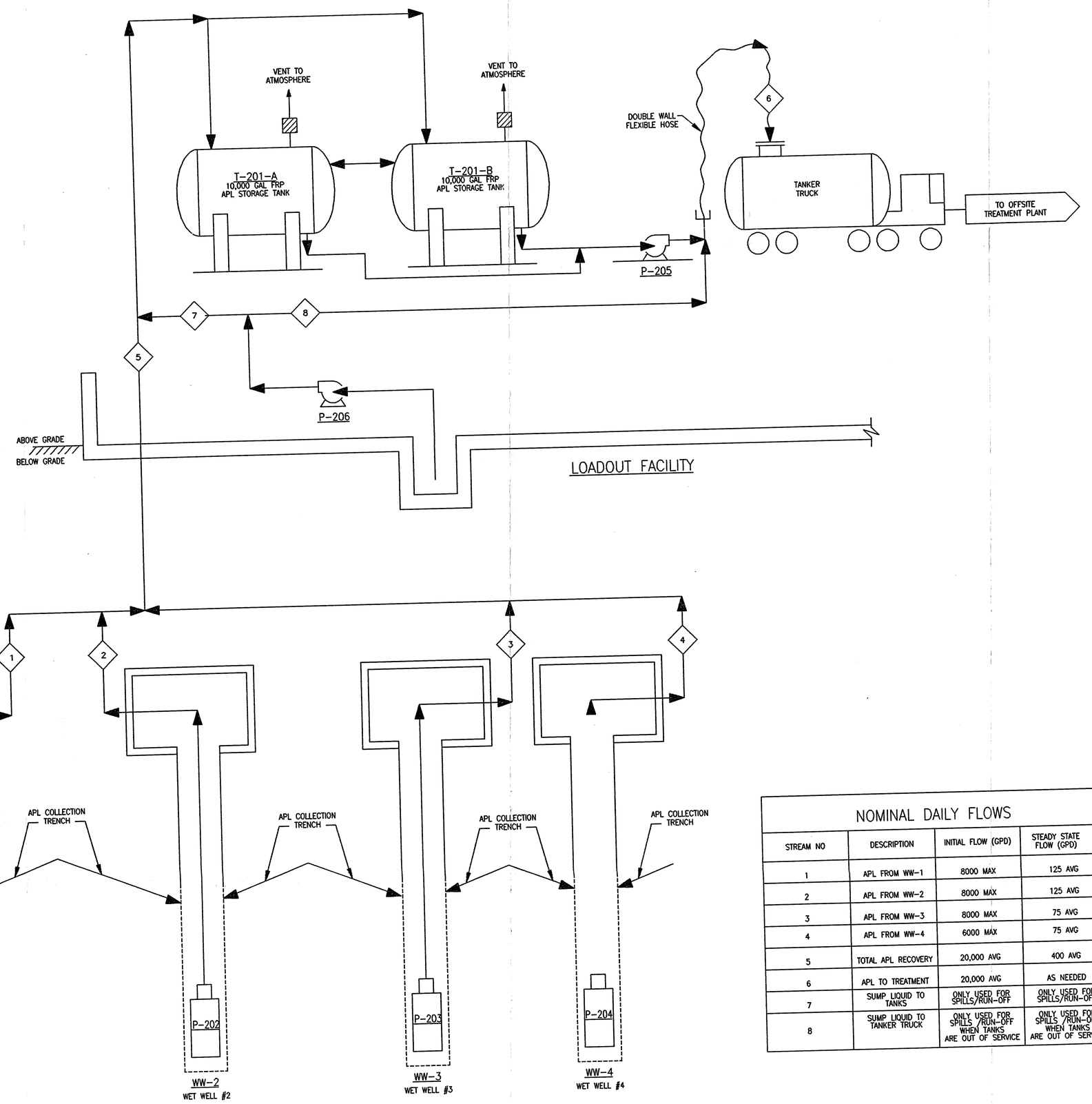
P:\ESBU\23594000\P&ID\10225J03.DWG 8/15/95 BJWHITFIELD

CONTRACT PKG. SUB1 SUB2 SUB3 SUB4 WRK1 WRK2 WRK3 WRK4 WRK5 WRK PKG. DCDME DIST.CODE

REDUCED PRINT SCALES 1/8" 1/4" 3/8" 1:25 1:33 1:50

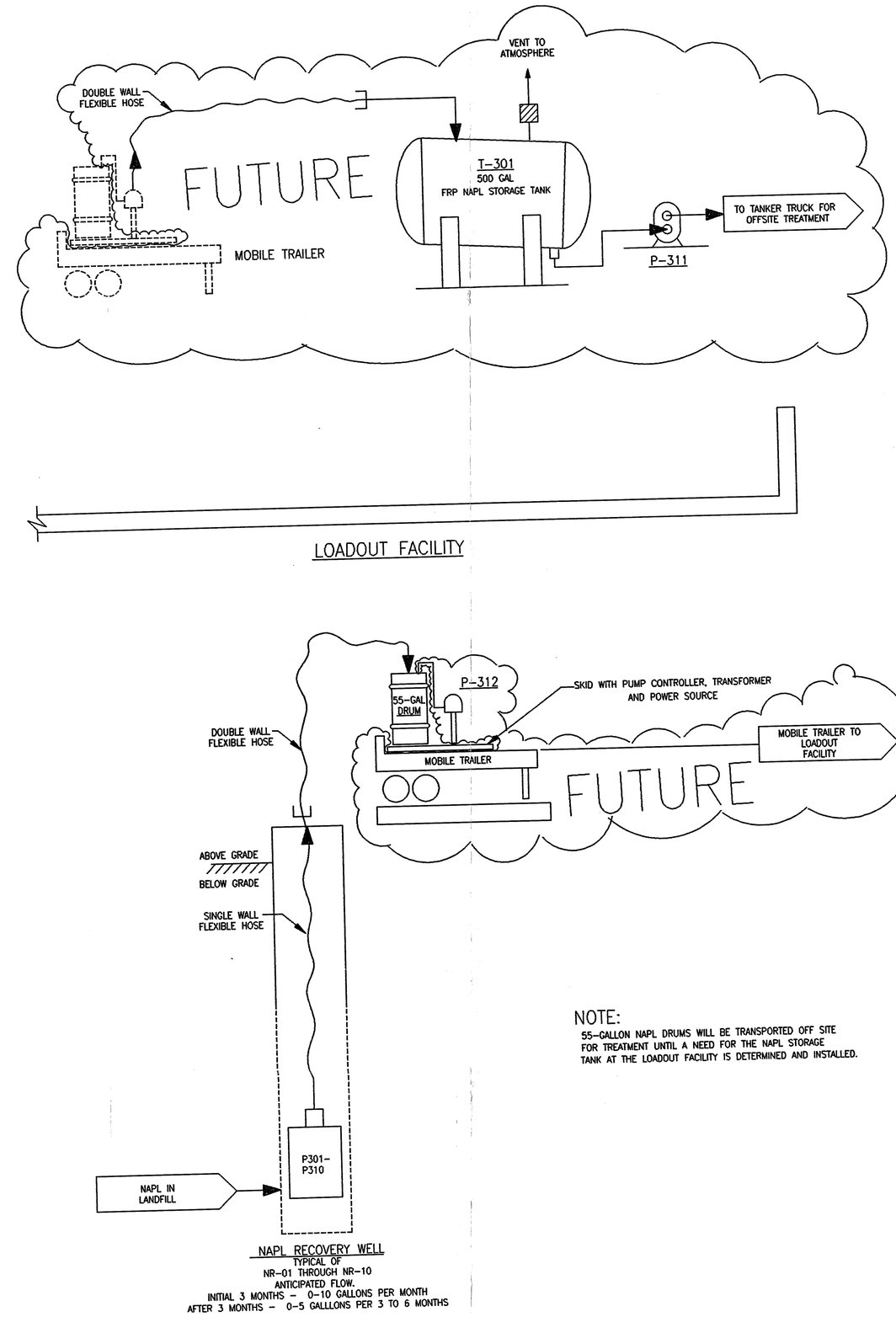
d sep 6 15:04:57 1995 K:\Project\gweu\BONDPLT.gsf J:\PLOTS\BOND\10225J03.PLT

*D EJWG 91/05/31



AQUEOUS PHASE LIQUID (APL) SYSTEM

NOMINAL DAILY FLOWS			
STREAM NO	DESCRIPTION	INITIAL FLOW (GPD)	STEADY STATE FLOW (GPD)
1	APL FROM WW-1	8000 MAX	125 AVG
2	APL FROM WW-2	8000 MAX	125 AVG
3	APL FROM WW-3	8000 MAX	75 AVG
4	APL FROM WW-4	6000 MAX	75 AVG
5	TOTAL APL RECOVERY	20,000 AVG	400 AVG
6	APL TO TREATMENT	20,000 AVG	AS NEEDED
7	SUMP LIQUID TO TANKS	ONLY USED FOR SPILLS/RUN-OFF	ONLY USED FOR SPILLS/RUN-OFF
8	SUMP LIQUID TO TANKER TRUCK	ONLY USED FOR SPILLS/RUN-OFF WHEN TANKS ARE OUT OF SERVICE	ONLY USED FOR SPILLS/RUN-OFF WHEN TANKS ARE OUT OF SERVICE



NAPL RECOVERY WELL
TYPICAL OF
NR-01 THROUGH NR-10
ANTICIPATED FLOW.
INITIAL 3 MONTHS - 0-10 GALLONS PER MONTH
AFTER 3 MONTHS - 0-5 GALLONS PER 3 TO 6 MONTHS

NOTE:
55-GALLON NAPL DRUMS WILL BE TRANSPORTED OFF SITE FOR TREATMENT UNTIL A NEED FOR THE NAPL STORAGE TANK AT THE LOADOUT FACILITY IS DETERMINED AND INSTALLED.

NON-AQUEOUS PHASE LIQUID (NAPL) SYSTEM

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ACB JTG	DRK
B	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	ACB ACB	

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	A.BUMB/K.MCNEUS
CHECKED BY	J.GERWIN
SUPERVISOR J.GERWIN	APP.DATE
LEAD ENGR./SPECIALIST A.BUMB	INITIALS
PROJECT R.MARGIUCCIO	DATE 9/13/95
CLIENT OXYCHEM/OLIN	APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

APL AND NAPL SYSTEMS
FLOW DIAGRAM

SCALE: NONE | DRAWING NUMBER: 594000-25J-01 | REV.: B

CAD DRAWING No. 10225J01

*DATE*TIME* MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐

P:\ESBU\23594000\P&ID\10225J01.DWG 8/15/95 BJ WHITFIELD

DCODE WRK. PKG. WRK1 WRK2 WRK3 WRK4 WRK5 CONTRACT PKG. SUB1 SUB2 SUB3 SUB4

REDUCED PRINT SCALES 1/8" 1:25 1:50

METRIC SCALES 1:33

Tue Sep 5 15:03:01 1995 K:\plotqueue\BONDPLT.dgn J:\PLOTQ\BOND\10225J01.PLT

FD.E.DWG 91/05/31

WW-1 THROUGH WW-4
WET WELLS
(SEE DWG 30K-06)

LP-1 THROUGH LP-4
LEVEL PROBES

P-201 THROUGH P-204
APL PUMPS
5.6 GPM, 110 FT TDH
1/3 HP, 230V, 1 PHASE
304 SS

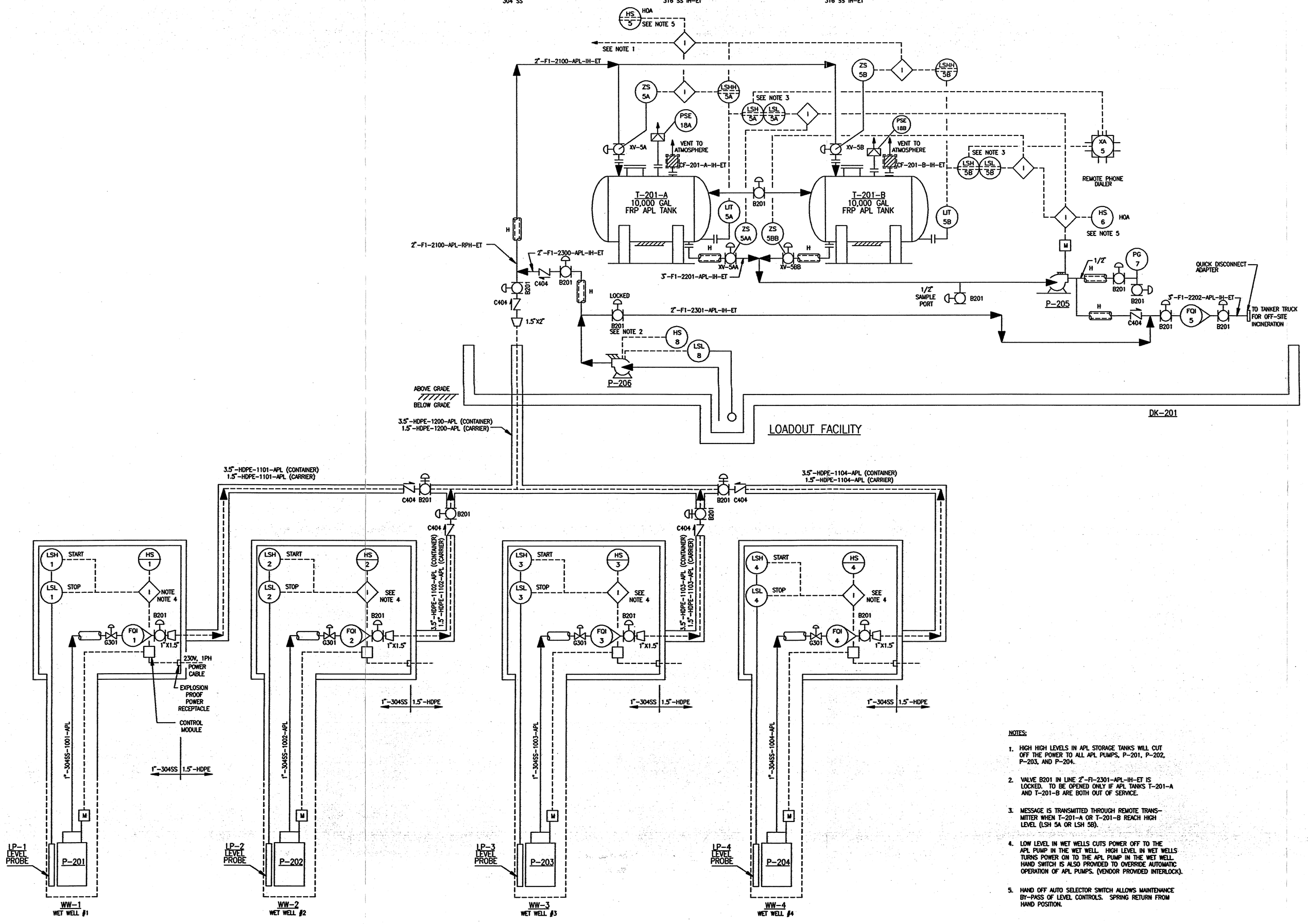
T-201-A/B
APL STORAGE TANK
10,000 GAL
FRP-IH-ET

P-206
SUMP PUMP
50 GPM, 30 FT TDH
1.5 HP, 230V, 1 PHASE
316 SS IH-ET

CF-201-A/B-IH-ET
CARBON FILTER
10 LB. VAPOR PHASE CARBON
IH-ET

P-205
APL TRANSFER PUMP CONCRETE CONTAINMENT DIKE
75 GPM, 25 FT TDH
2 HP, 230V, 1 PHASE
316 SS IH-ET

DK-201
(SEE DWG 150-01)



AQUEOUS PHASE LIQUID (APL) SYSTEM

NOTES:

1. HIGH HIGH LEVELS IN APL STORAGE TANKS WILL CUT OFF THE POWER TO ALL APL PUMPS, P-201, P-202, P-203, AND P-204.
2. VALVE B201 IN LINE 2"-F1-2301-APL-IH-ET IS LOCKED. TO BE OPENED ONLY IF APL TANKS T-201-A AND T-201-B ARE BOTH OUT OF SERVICE.
3. MESSAGE IS TRANSMITTED THROUGH REMOTE TRANSMITTER WHEN T-201-A OR T-201-B REACH HIGH LEVEL (LSH 5A OR LSH 5B).
4. LOW LEVEL IN WET WELLS CUTS POWER OFF TO THE APL PUMP IN THE WET WELL. HIGH LEVEL IN WET WELLS TURNS POWER ON TO THE APL PUMP IN THE WET WELL. HAND SWITCH IS ALSO PROVIDED TO OVERRIDE AUTOMATIC OPERATION OF APL PUMPS. (VENDOR PROVIDED INTERLOCK).
5. HAND OFF AUTO SELECTOR SWITCH ALLOWS MAINTENANCE BY-PASS OF LEVEL CONTROLS. SPRING RETURN FROM HAND POSITION.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS
A	1-29-93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	AGB JTG										
B	08/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	AGB AGB	DRK									

FLUOR DANIEL
OPS-CENTER

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DESIGNED BY	A.BUMB/S.COTHERN
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
LEAD ENGR./SPECIALIST	A.BUMB
PROJECT	R.MARQUIS
CLIENT	OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

PIPING & INSTRUMENTATION DIAGRAM
APL SYSTEM

SCALE: NONE
DRAWING NUMBER: 594000-25J-02
REV.: B

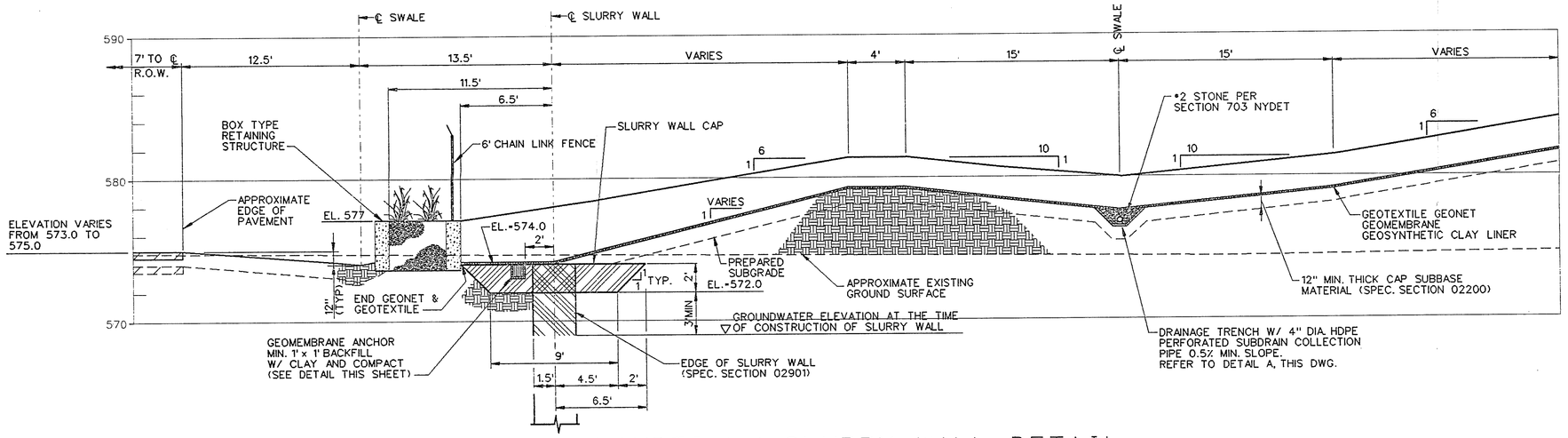
CAD DRAWING No. 10225J02

*DATE*TIME* MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐

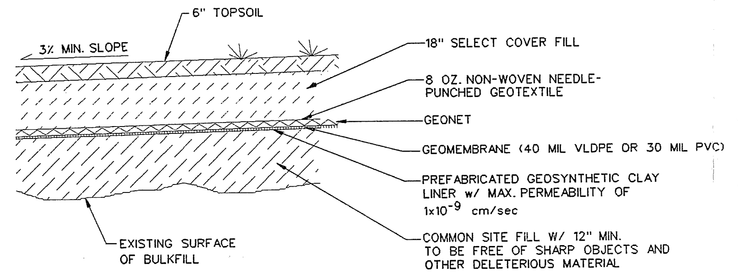
P:\ESBU\23594000\P&ID\10225J02.DWG 8/15/95 BJWHITFIELD

FD E.DWG 91/05/31

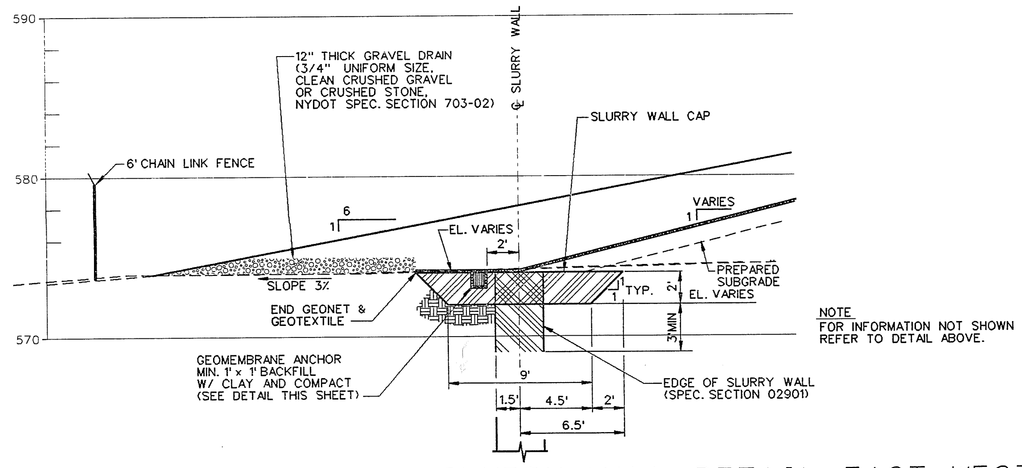
REDUCED PRINT SCALES 1/8" 1/4" 3/8"
METRIC SCALES 1:25 1:33 1:50
REDUCED PRINT SCALES
DIST.CODE DCODE WRK. PKG. WRK1 WRK2 WRK3 WRK4 WRK5 CONTRACT PKG. SUB1 SUB2 SUB3 SUB4



TYPICAL LANDFILL/ SLURRY WALL DETAIL TOE AT BUFFALO AVENUE

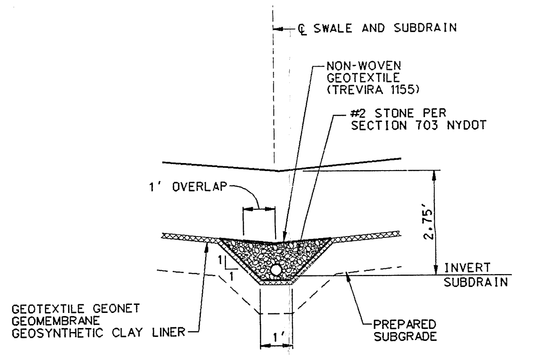


TYPICAL CAP DETAIL B 10S-02



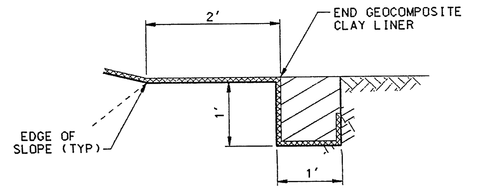
NOTE
FOR INFORMATION NOT SHOWN REFER TO DETAIL ABOVE.

TYPICAL LANDFILL/ SLURRY WALL DETAIL-EAST WEST



DRAINAGE TRENCH DETAIL A

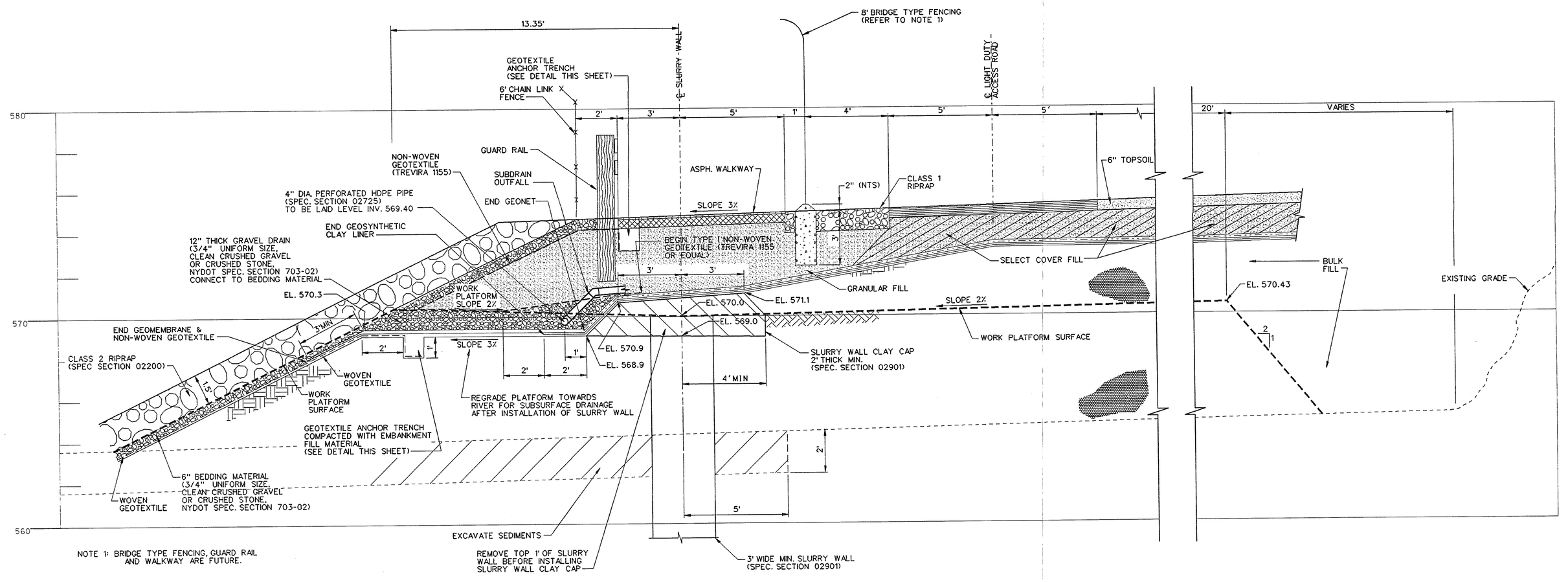
THIS DWG.



TYPICAL ANCHOR TRENCH DETAIL

GENERAL NOTES:

1. FIELD INSTALLATION AND TESTING OF GEOSYNTHETIC LAYERS SHALL BE AS RECOMMENDED BY THEIR RESPECTIVE MANUFACTURER(S) AND APPROVED BY THE CONSTRUCTION MANAGER. THE GEOSYNTHETIC LAYERS SHALL BE INSTALLED BY AN EXPERIENCED INSTALLER. ALL SUBMITTALS AND RESULTS OF TESTING DATA SHALL BE APPROVED BY THE CONSTRUCTION MANAGER PRIOR TO ANY MATERIALS ARRIVING ON THE SITE.
2. THE CONTRACTOR SHALL SUBMIT A QUALITY CONTROL AND FIELD TESTING PLAN INCLUDING APPROPRIATE ASTM STANDARD METHODS AS RECOMMENDED BY THE GEOSYNTHETIC MANUFACTURER(S) FOR THE CONSTRUCTION MANAGERS APPROVAL.
3. THE WOVEN GEOTEXTILE SHALL BE MIRAFI 700X, OR EXXON GTF-400E, OR EQUIVALENT.
4. THE NON-WOVEN GEOTEXTILE SHALL BE TREVIRA SPUNBOND 1125, OR POLYFELT TS700, OR EQUIVALENT, UNLESS SHOWN OTHERWISE IN THE DETAIL.
5. THE GEONET SHALL BE GUNDLE GUNDNET XL-14, OR NATIONAL SEAL COMPANY POLY-NET 2000, OR EQUIVALENT HAVING A MINIMUM TRANSMISSIVITY OF $0.21X10^{-3}$ SQUARE METERS PER SECOND FOR EACH FOOT OF WIDTH FOR ALL SLOPES.
6. THE GEOMEMBRANE SHALL BE A MINIMUM 40 MIL THICK LDPE THE GEOMEMBRANE SHALL BE GUNDLE GUNDLINE VL, OR NATIONAL SEAL COMPANY VLDPE, OR EQUIVALENT.
7. THE GEOSYNTHETIC CLAY LINER SHALL BE CLAYMAX 200R, OR CETCO BENTOMAT CS, OR EQUIVALENT.
8. THE PROPOSED MATERIALS FOR THE CAP SLOPE ALONG BUFFALO AVENUE SHOULD BE SUBMITTED BY THE CONTRACTOR FOR DIRECT SHEAR TESTING. A MINIMUM FRICTION ANGLE OF 11 DEGREES MUST BE OBTAINED USING THE PROPOSED GEOSYNTHETIC MATERIALS AND SITE SPECIFIC SOILS. TESTING BY AN INDEPENDENT LAB, (MANUFACTURER'S TEST DATA IS NOT SUFFICIENT) SHALL MEET THE FOLLOWING REQUIREMENTS:
   a) SUBMIT A COMPOSITE OF THE PROPOSED COMPONENTS OF THE CAP SYSTEM INCLUDING SELECT COVER FILL, GEOTEXTILE/GEONET/GEOTEXTILE DRAINAGE COMPOSITE, 40 MIL GEOMEMBRANE, HYDRATED GEOSYNTHETIC CLAY LINER, AND SUBBASE MATERIAL FOR DIRECT SHEAR TESTING.
   b) FOLLOW THE PROCEDURES FOR DIRECT SHEAR TESTING FOR GEOSYNTHETIC SYSTEMS AS DESCRIBED IN ASTM STANDARD TEST METHOD D5321, DETERMINING THE COEFFICIENT OF SOIL AND GEOSYNTHETIC FRICTION BY THE DIRECT SHEAR METHOD. USE A MINIMUM 12" X 12" SHEAR BOX.
   c) THREE POINTS ON THE MOHR-COULOMB ENVELOPE ARE REQUIRED. USE NORMAL STRESSES OF 150, 300, AND 600 P.S.F.
   d) HYDRATE THE GEOSYNTHETIC CLAY LINER UNDER THE THREE PREVIOUSLY SPECIFIED NORMAL STRESSES, TRANSFER THE GCL TO THE DIRECT SHEAR BOX, REESTABLISH THE NORMAL STRESS, AND THEN PERFORM THE SHEAR.
9. THE TEXTURED GEOMEMBRANE SHALL BE PLACED ON SLOPES GREATER THAN 25% AND SHALL BE A MINIMUM 40 MIL THICK. THE TEXTURED GEOMEMBRANE SHALL BE BY GUNDLE GUNDLINE VLT, OR NATIONAL SEAL COMPANY FRICTION SEAL VL, OR EQUIVALENT. IF THE TEXTURED GEOMEMBRANE IS A DIFFERENT MATERIAL THAN THE NON-TEXTURED GEOMEMBRANE, THE INSTALLER IS RESPONSIBLE FOR DEVELOPING AND DEMONSTRATING AN EFFECTIVE MECHANISM TO CREATE A WATERTIGHT SEAL BETWEEN THE TWO MATERIALS.
10. THE GEOSYNTHETIC CLAY LINER ON SLOPES GREATER THAN 10% SHALL BE CLAYMAX SHEAR PRO 500SP OR EQUIVALENT.



NOTE 1: BRIDGE TYPE FENCING, GUARD RAIL AND WALKWAY ARE FUTURE.

TYPICAL BULKHEAD/SLURRY WALL DETAIL AT RIVER

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	DRK
B	8/24/95	REVISED TITLE		
C	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	
INITIALS	
PROJECT	R. MARGUCCIO
APP. DATE	
CLIENT	OXYCHEM/OLIN
APP. DATE	

OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

CAPPING SYSTEM AND BULKHEAD SECTION AND DETAILS

SCALE	DRAWING NUMBER	REV.
NONE	594000-10S-02	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210S02

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

REDUCED PRINT SCALES 1/2" 1" 2" 3" METRIC SCALES

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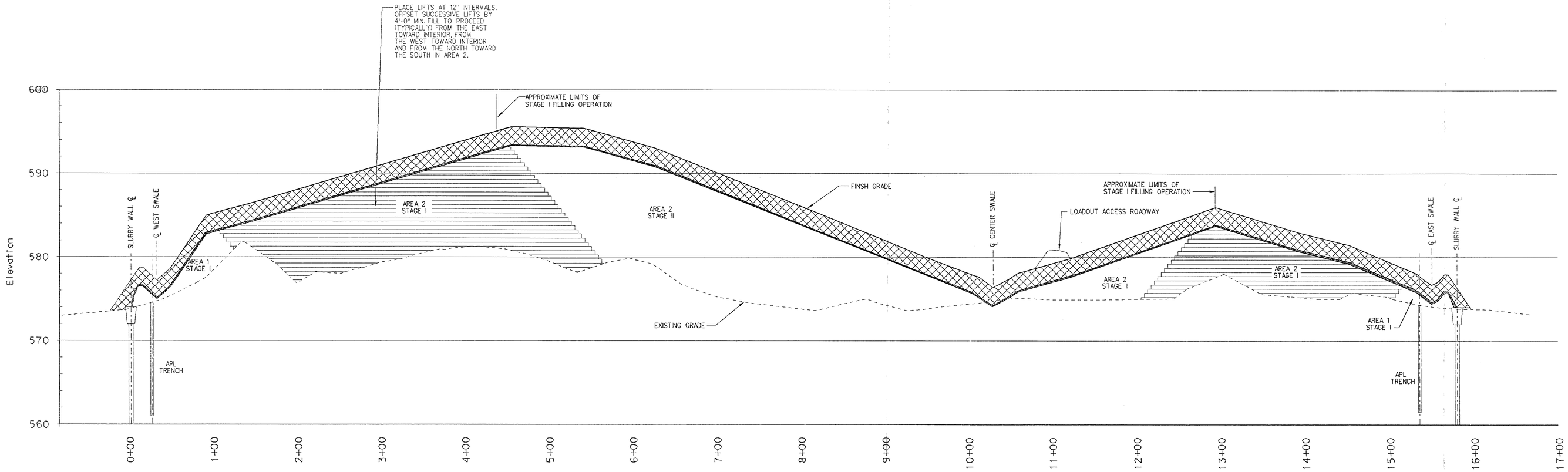
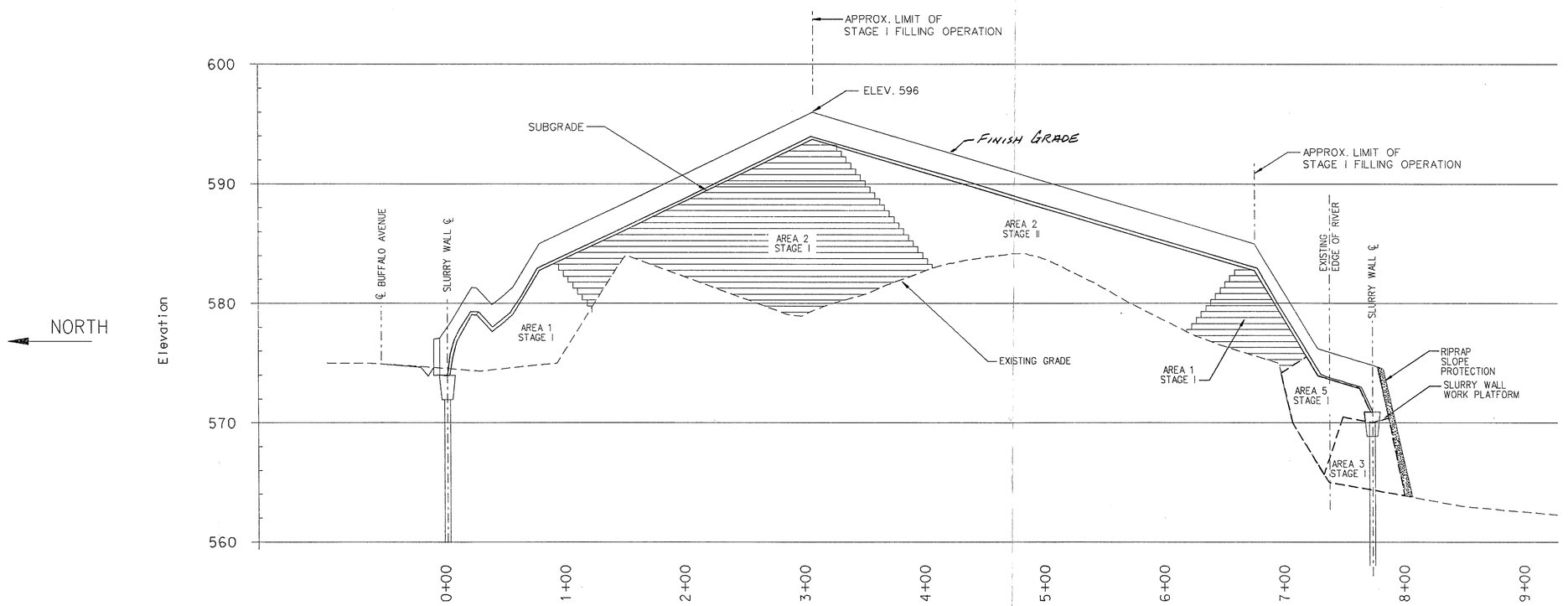


SECTION 1
SCALE:
HORIZ: 1" = 60'
VERT: 1" = 6'

10U-01
10U-06
10Q-01
10Q-02

NOTE: VERTICAL DIMENSIONS EXAGGERATED 10 TIMES.



SECTION 2
SCALE:
HORIZ: 1" = 60'
VERT: 1" = 6'

10U-01
10U-06
10Q-01
10Q-02

NOTE: VERTICAL DIMENSIONS EXAGGERATED 10 TIMES.

NOTES:

1. EXISTING GRADE BASED ON TOPOGRAPHICAL INFORMATION PROVIDED BY McINTOSH & McINTOSH, P.C. ON MAY 11, 1992. THEREFORE, FILL PLACED AFTER THIS DATE IS NOT SHOWN.
2. REFER TO DWGS. 594000-10Q-01 & 02 FOR SEQUENCING OF CONSTRUCTION ACTIVITIES.
3. REFER TO DWG. 594000-10U-01 FOR FINAL GRADING PLAN.
4. REFER TO DWG. 594000-10S-01 AND -02 FOR DETAILS OF CAPPING SYSTEM AND BULKHEAD.
5. REFER TO DWG. 594000-30K-09 FOR LAYOUT OF SLURRY WALL.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING SUBMITTAL REPORT (PRELIMINARY/INTERMEDIATE)	JTG	DRK
B	09/08/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	
CLIENT	OXYCHEM/OLIN
APP.DATE	

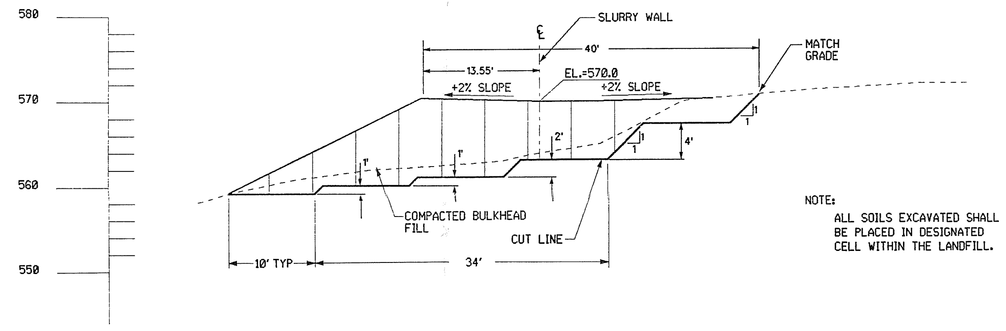
OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE GRADING CROSS SECTIONS

SCALE	DRAWING NUMBER	REV.
VARIES	594000-10S-03	B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☑ NO ☐ CADD DRAWING No. 10210S03

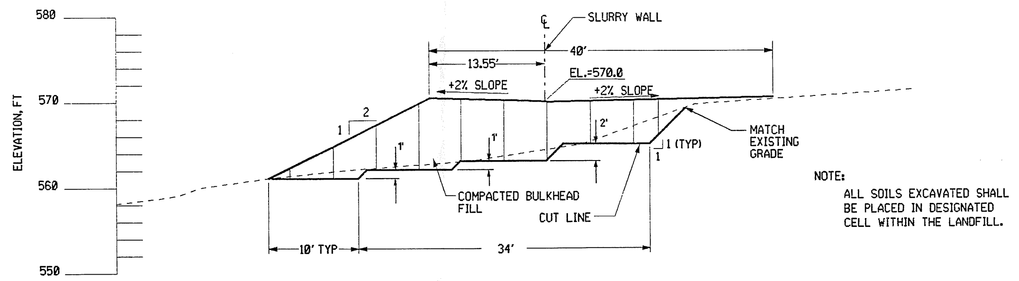
SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE



NOTE:
ALL SOILS EXCAVATED SHALL BE PLACED IN DESIGNATED CELL WITHIN THE LANDFILL.

BULKHEAD (PHASE I) SLURRY WALL WORK PLATFORM

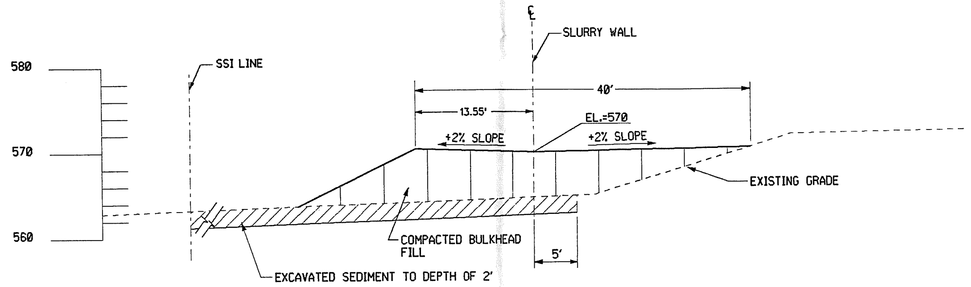
NTS — H — 30K-03



NOTE:
ALL SOILS EXCAVATED SHALL BE PLACED IN DESIGNATED CELL WITHIN THE LANDFILL.

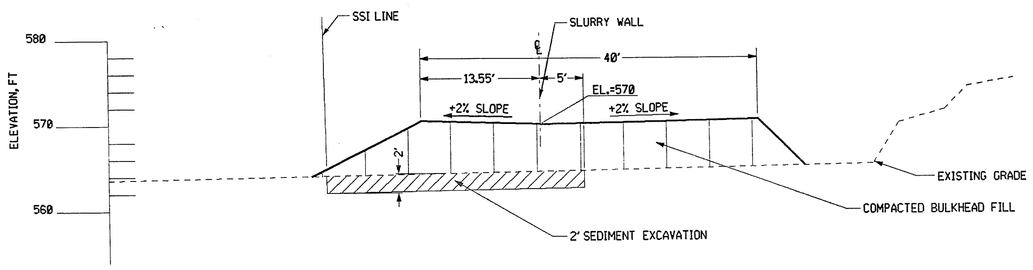
BULKHEAD (PHASE I) SLURRY WALL WORK PLATFORM

NTS — I — 30K-03



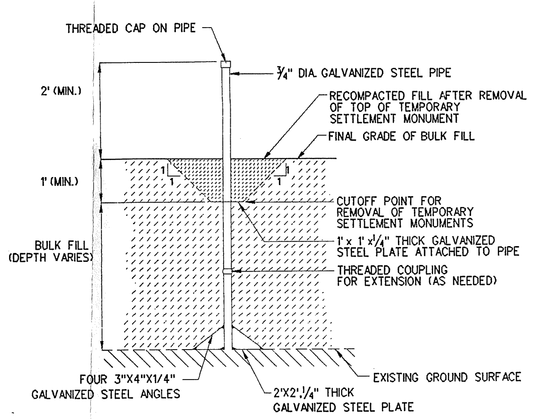
BULKHEAD (PHASE I) SLURRY WALL WORK PLATFORM

NTS — J — 30K-03



BULKHEAD (TYP. PHASE I) SLURRY WALL WORK PLATFORM

NTS — K — 30K-03

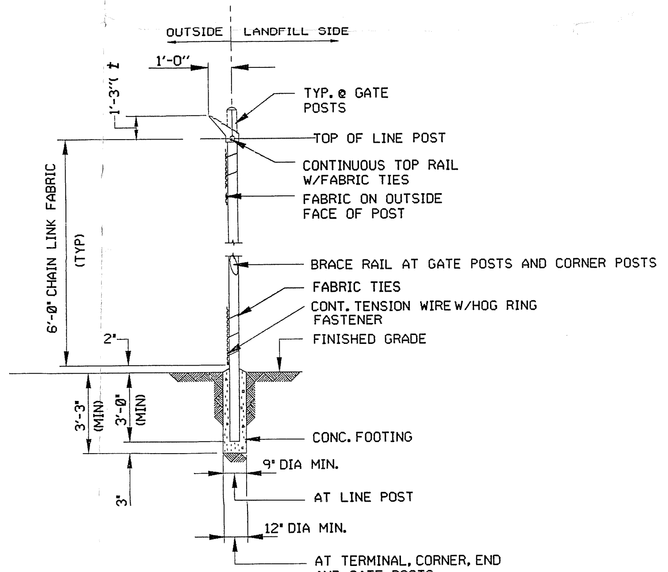


TEMPORARY SETTLEMENT MONUMENT

GEOMEMBRANE NTS

SETTLEMENT MONUMENT NOTES:

1. INSTALLATION OF TEMPORARY SETTLEMENT MONUMENT BY OWNER.
2. CONTRACTOR TO REMOVE TOP OF TEMPORARY SETTLEMENT MONUMENTS A MINIMUM OF ONE FOOT BELOW FINAL GRADE OF THE BULK FILL AS SHOWN ABOVE BEFORE CONSTRUCTION OF THE SITE CAP.

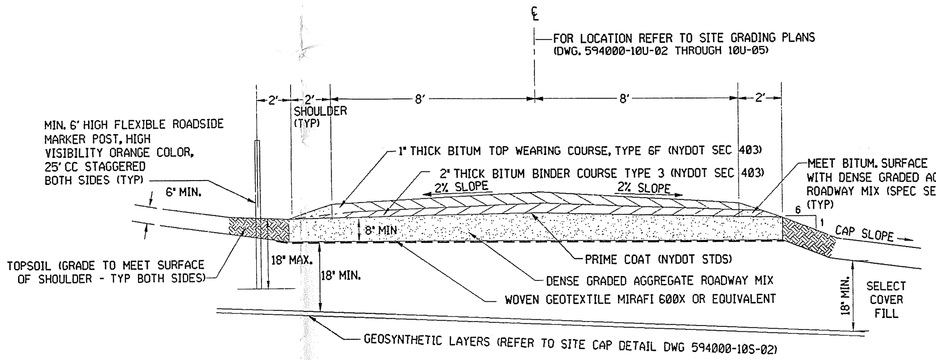


TYPICAL FENCE POST DETAIL

NTS

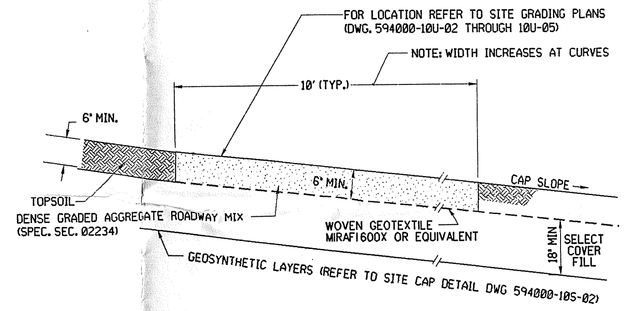
FENCING NOTES:

1. FOR LOCATION OF FENCING, SEE DWGS. 594000-10U-02 THROUGH 10U-05.
2. ALL FENCING MATERIAL SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 02834.
3. DOUBLE SLIDE GATE FRAMES SHALL BE 1-1/2 INCH SCHEDULE 40 HOT DIP GALVANIZED STEEL PIPE WITH 1-1/2 INCH SCHEDULE 40 INTERMEDIATE POSTS AND 3/8 INCH DIA. POST RODS.
4. ALL HARDWARE SHALL BE MANUFACTURER'S STANDARD HARDWARE.
5. TOP RAIL IS REQUIRED FOR ALL PERMANENT FENCING. TENSION WIRE MAY BE USED IN LIEU OF TOP RAIL FOR TEMPORARY FENCING.
6. ALL POSTS FOR PERMANENT FENCING SHALL BE SET IN CONCRETE AS PER TYP. POST DETAIL.
7. CORNER, END AND GATE POSTS FOR TEMPORARY FENCING SHALL BE SET IN CONCRETE AS PER TYP. POST DETAIL. LINE POSTS FOR TEMPORARY FENCING MAY BE SET IN THE GROUND AND STABILIZED USING DRIVE ANCHORS.



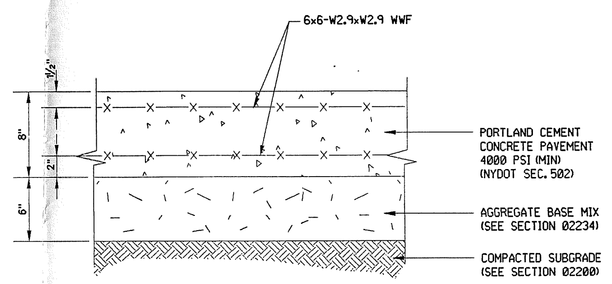
LOADOUT FACILITY ACCESS ROAD DETAIL

NTS



LIGHT DUTY ACCESS ROAD DETAIL

NTS



CONCRETE APRON DETAIL

NTS

APRON NOTE:
APRON LOCATED BETWEEN EDGE OF EXISTING PAVEMENT OF BUFFALO AVENUE AND RIGHT-OF-WAY FOR THE FULL WIDTH OF THE LOADOUT FACILITY ACCESS ROAD INTO THE SITE.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY INTERMEDIATE)	FGS	DRK
B	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	T. SZYMONIAK
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS — RELEASE DATE
LEAD ENGR./SPEC.	J. GERVAIS — INITIALS
PROJECT	R. MARGUCCIO — APP.DATE
CLIENT	OXYCHEM/OLIN — APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE DETAILS

SCALE — DRAWING NUMBER 594000-10S-01 — REV. B

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10210S01

SUB-CONTRACT PKG. WRK. PKG. DIST. CODE

REDUCED PRINT SCALES

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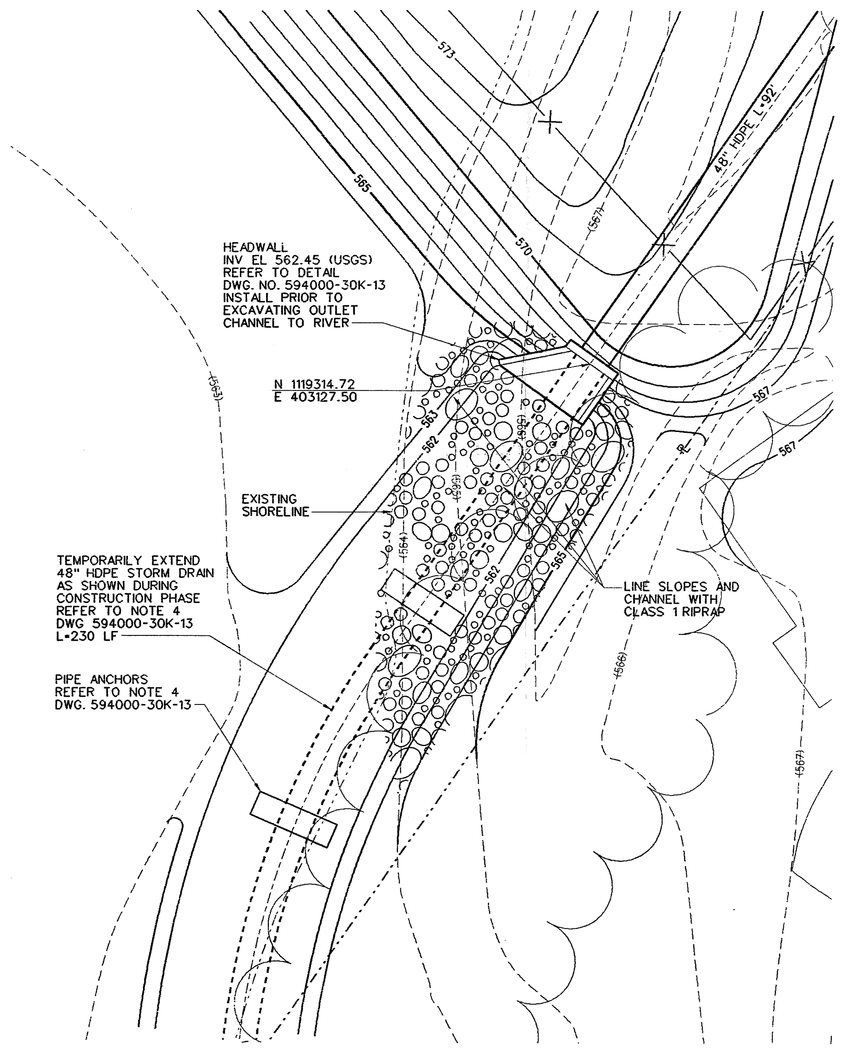
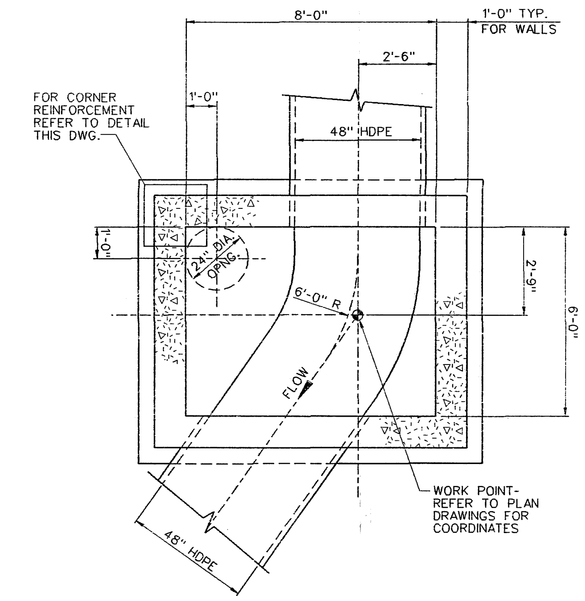


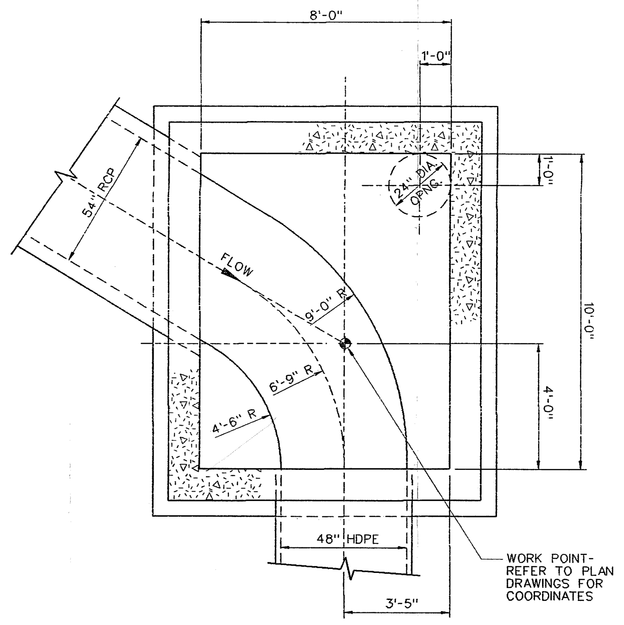
ENLARGED PLAN

SCALE: 1"=10' 594000-30K-05C



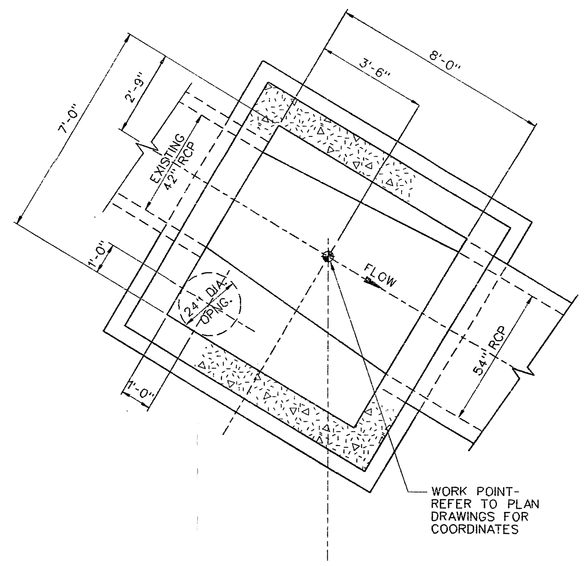
PLAN - BASE SECTION
MANHOLE SDMH-1

N.T.S.



PLAN - BASE SECTION
MANHOLE SDMH-3

N.T.S.

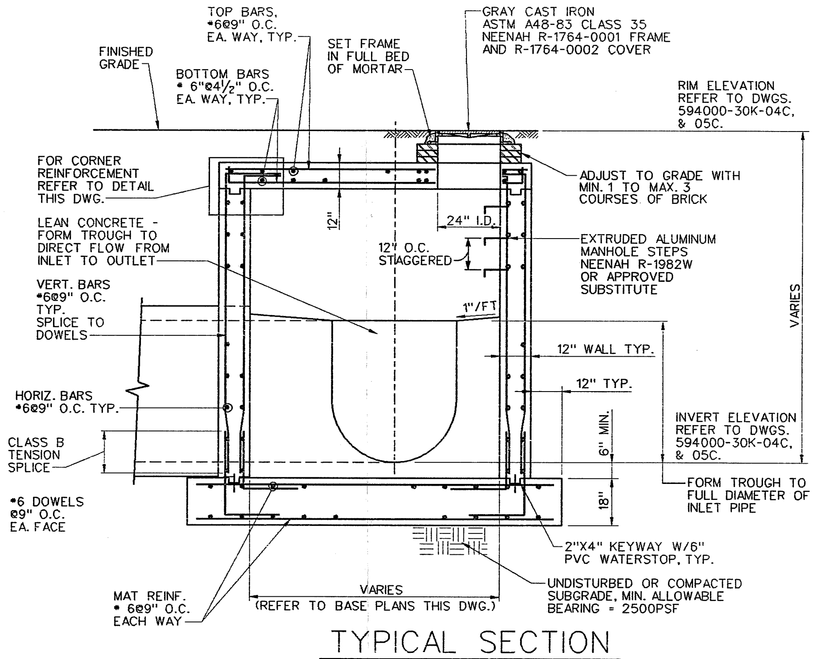


PLAN - BASE SECTION
MANHOLE SDMH-5
(SDMH-4 SIMILAR)

N.T.S.

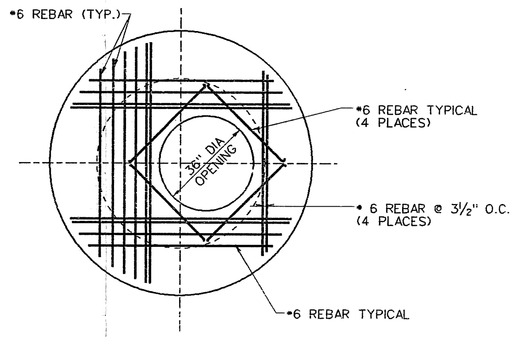
NOTES

1. REFER TO DWG. 594000-15Q-01 FOR ADDITIONAL NOTES.
2. REINFORCING STEEL SHALL BE GRADE 60.
3. CONCRETE STRENGTH SHALL BE 4000 PSI AT 28 DAYS; MAXIMUM WATER/CEMENT RATIO SHALL BE 0.40.
4. PLACE CONCRETE IN ACCORDANCE WITH ACI 301-89.

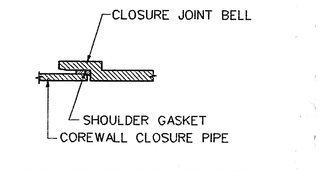


TYPICAL SECTION
MANHOLES SDMH-1,3,4 & 5

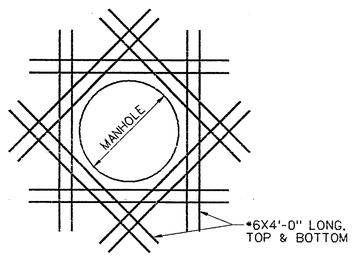
N.T.S.



PLAN-COVER SLAB

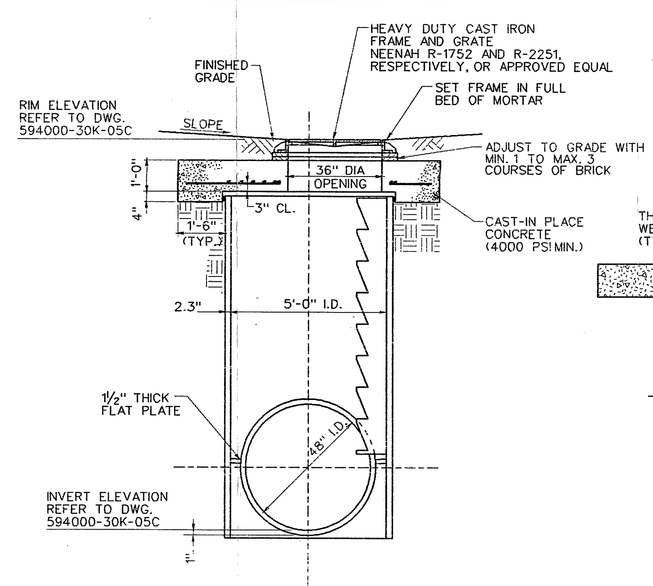


CLOSURE JOINT DETAIL



ADDITIONAL REINFORCMENT
AT MANHOLE OPENING DETAIL

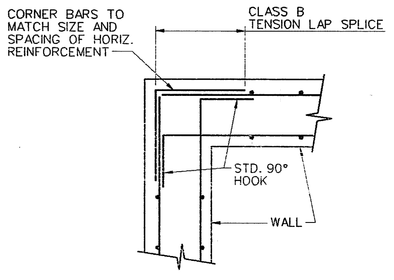
N.T.S.



SECTION — SIDE ELEVATION

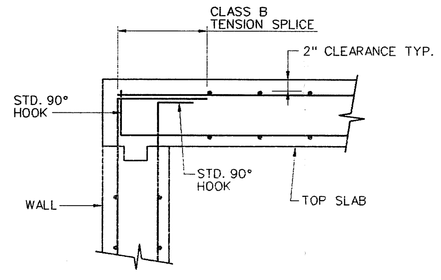
PREFABRICATED HDPE MANHOLE DETAIL
MANHOLE SDMH-2

N.T.S.



CORNER REINFORCING DETAIL
PLAN VIEW

N.T.S.



TOP CORNER REINFORCING DETAIL
ELEVATION VIEW

N.T.S.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
LEAD ENGR./SPEC.	
PROJECT	R. MARGUGLIO
CLIENT	OXYCHEM/OLIN

RELEASE DATE — INITIALS — APP.DATE 9/13/95 — APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

STORM DRAIN
SECTIONS AND DETAILS

SCALE	DRAWING NUMBER	REV.
NOTED	594000-30K-14	A

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K14.DET

REDUCED PRINT SCALES — SUB-CONTRACT PKG. — WRK. PKG. — DIST. CODE

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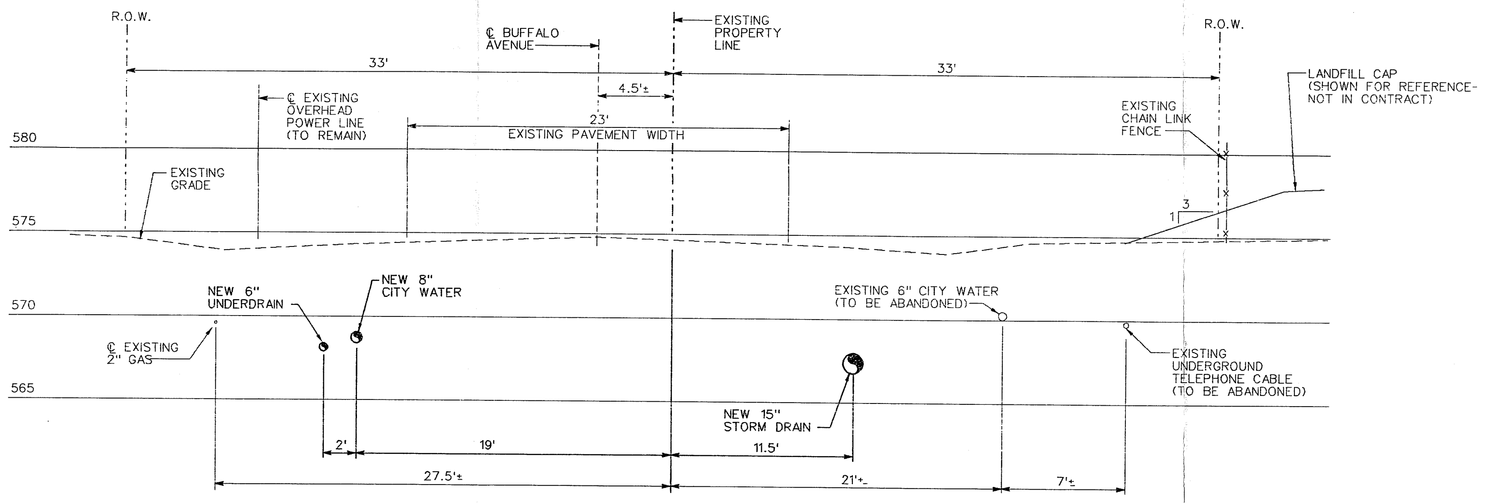
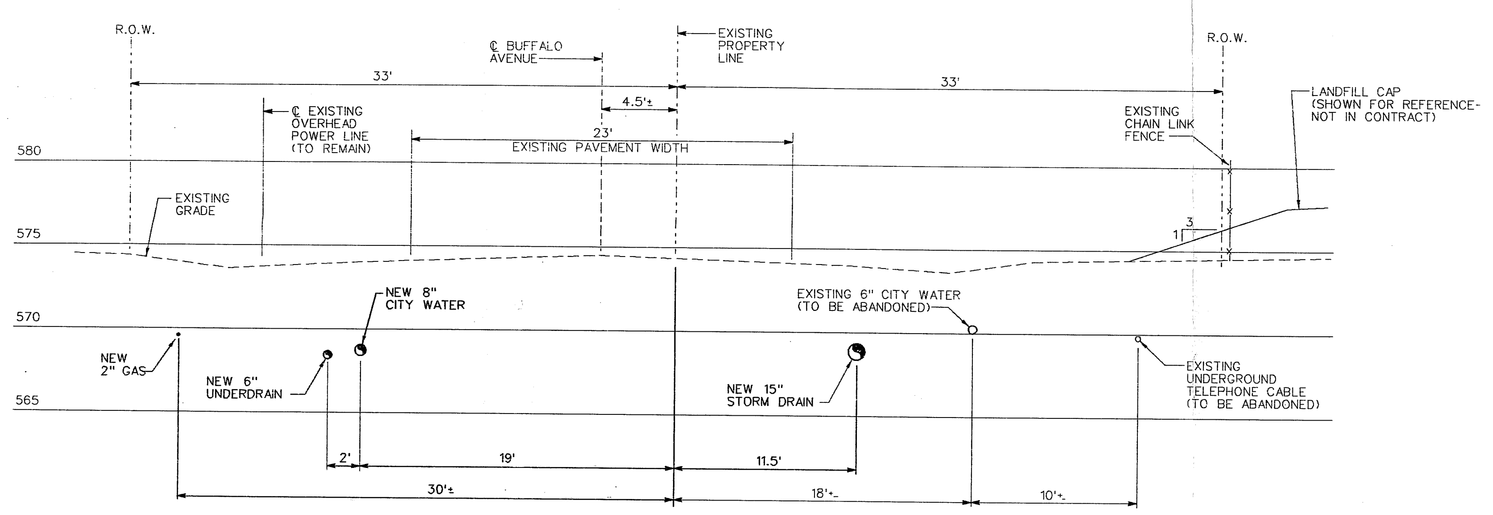
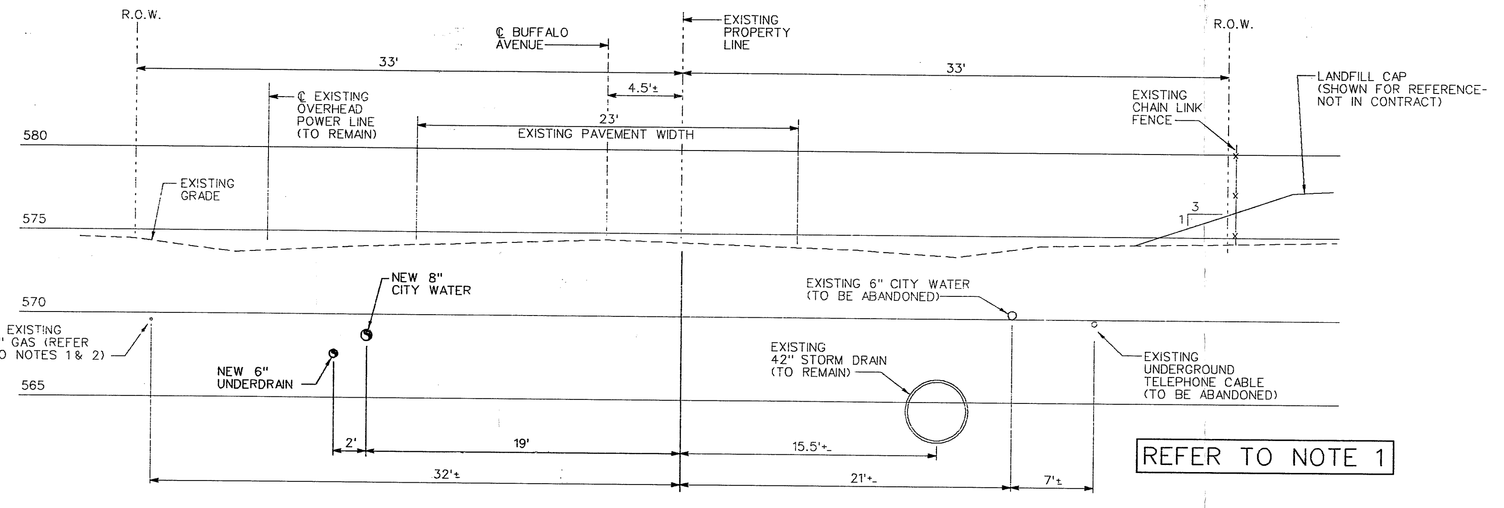


SECTION A
1"=5' 30K-02C

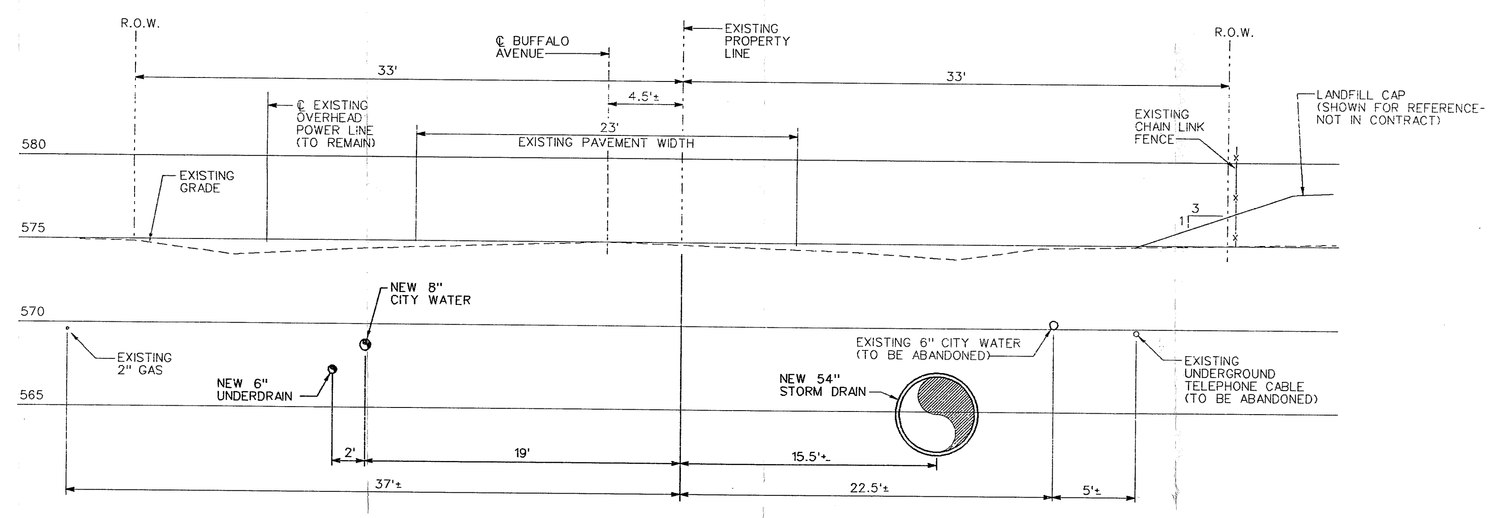


SECTION B
1"=5' 30K-02C

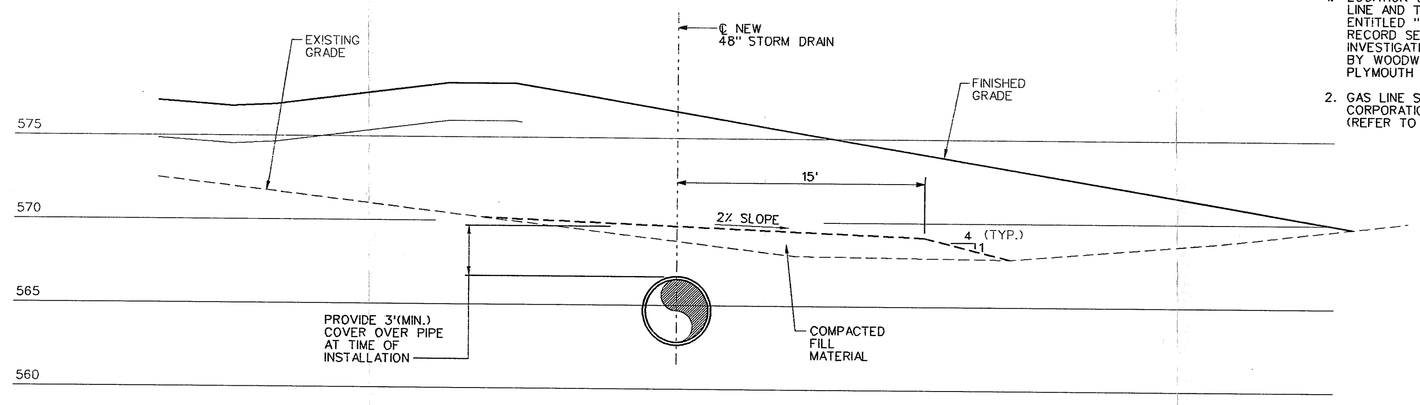


REFER TO NOTE 1

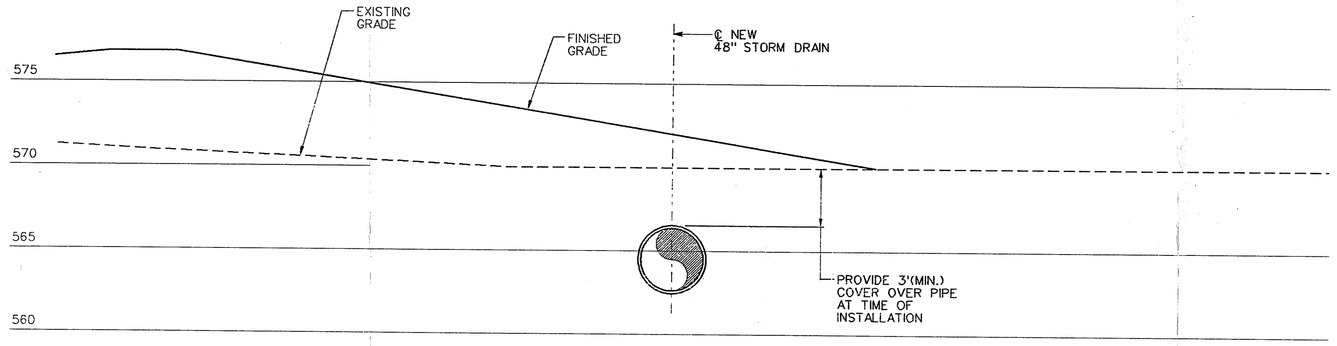
SECTION C
1"=5' 30K-04C



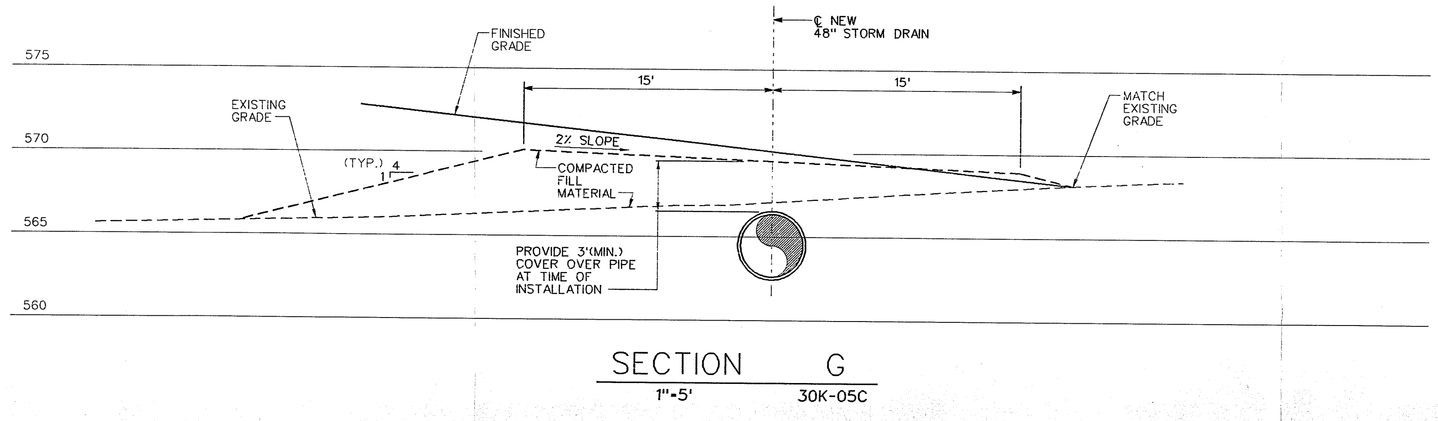
SECTION D
1"=5' 30K-04C



SECTION E
1"=5' 30K-05C



SECTION F
1"=5' 30K-05C



SECTION G
1"=5' 30K-05C

NOTES

1. LOCATION OF EXISTING STORM DRAIN, GAS LINE, WATER LINE AND TELEPHONE CABLE IS TAKEN FROM A REPORT ENTITLED "FINAL REPORT, UTILITIES INVESTIGATION/ RECORD SEARCH PHASE, 102nd STREET REMEDIAL INVESTIGATION, NIAGARA FALLS, NEW YORK", PREPARED BY WOODWARD-CLYDE CONSULTANTS, 5120, BUTLER PIKE, PLYMOUTH MEETING, PA 19462, DATED JULY 15, 1985.
2. GAS LINE SIZE ACCORDING TO NATIONAL FUEL GAS CORPORATION IS 2". SIZE INDICATED IN WCC REPORT (REFER TO NOTE 1 ABOVE) IS 8".

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	6/3/94	ISSUED FOR REVIEW AND COMMENT		JTG
B	7/25/94	ISSUED FOR APPROVAL (UTILITY RELOCATION)		JTG
0	9/1/94	ISSUED FOR CONSTRUCTION (WATER LINE/UNDERDRAIN)		JTG
1	9/29/94	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		JTG
2	3/15/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		JTG
3	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

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FLUOR DANIEL

DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	INITIALS
PROJECT	R. MARGUCCIO 9/15/95
CLIENT	OXYCHEM/OLIN
APP.DATE	

OXYCHEM/OLIN
REMEDIALDESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

UTILITY RELOCATION
SECTIONS AND DETAILS

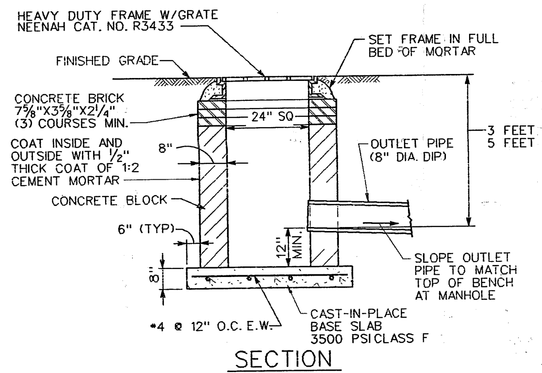
SCALE	DRAWING NUMBER	REV.
NOTED	594000-30K-11	3

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K11.DET

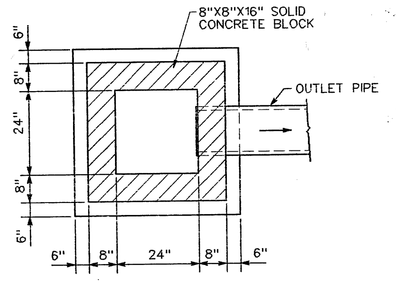
SUB-CONTRACT PKG.
WRK. PKG.
DIST. CODE

REDUCED PRINT SCALES 1/2" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0"

Thu Sep 7 14:41:14 1995 k:\plotq\queue\BOND5PRF.qcf JA\PLOTC\BOND50\10230K11.PRF

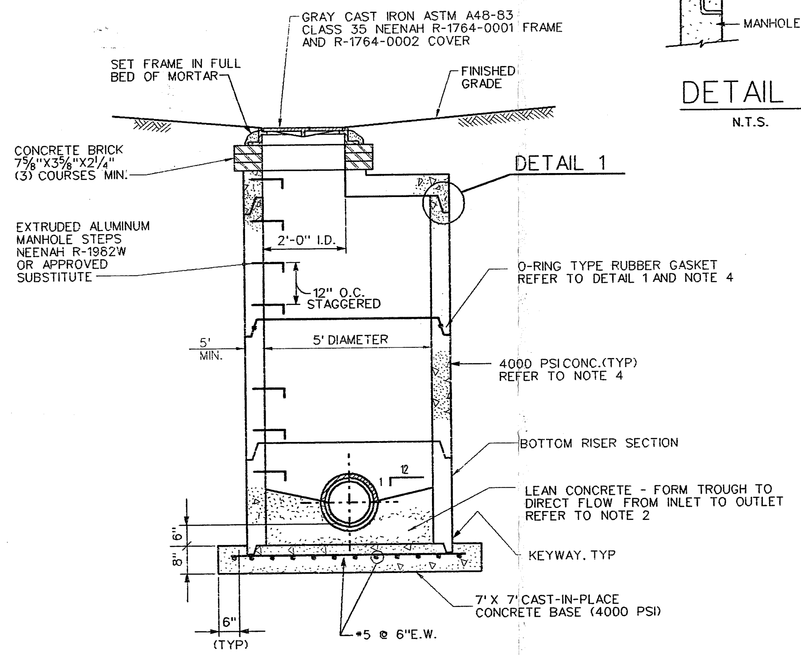


SECTION

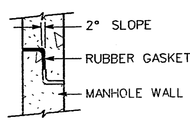


PLAN - BASE SECTION

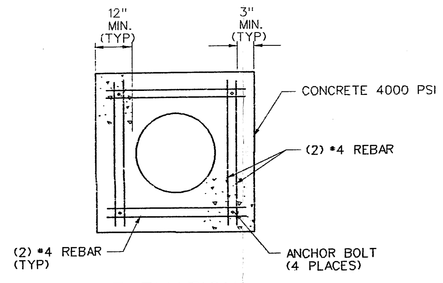
TYPICAL CATCHBASIN DETAIL
(BRICK/BLOCK)
N.T.S.



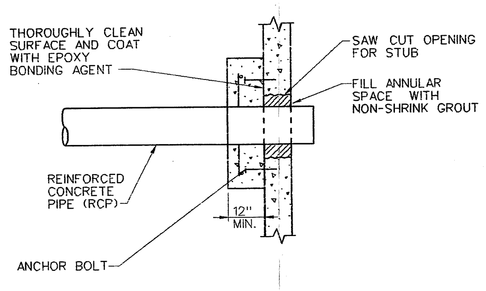
TYPICAL MANHOLE DETAIL - SDMH-6 THRU 11
(PRECAST CONCRETE)
N.T.S.



DETAIL 1
N.T.S.

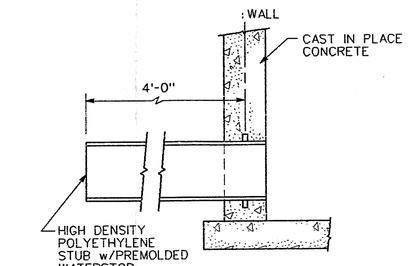


ELEVATION

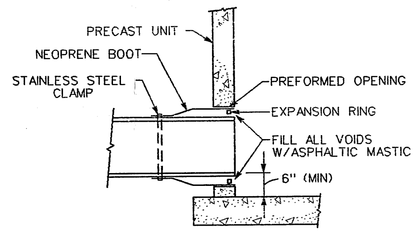


SECTION

CONNECTION TO EXISTING MANHOLE - MH-3
N.T.S.



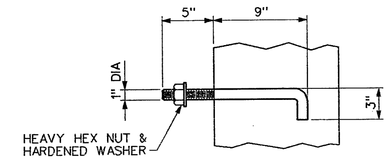
CONNECTION DETAIL
(CAST-IN-PLACE CONCRETE)
HIGH DENSITY POLYETHYLENE PIPE (HDPE)
N.T.S.



CONNECTION DETAIL
(PRECAST CONCRETE)
REINFORCED CONCRETE PIPE (RCP)
DUCTILE IRON PIPE (DIP)
N.T.S.

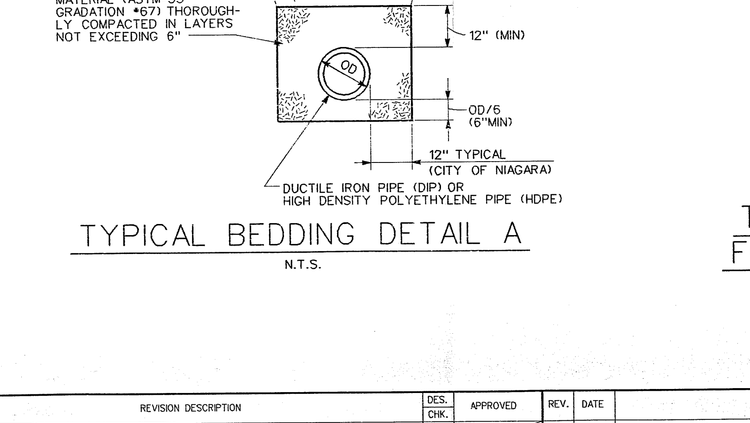
NOTES:

1. OPENINGS FOR PIPE IN PRECAST BASE AND RISER UNITS SHALL BE PREFORMED. THE CONTRACTOR SHALL FURNISH THE FABRICATOR WITH ANGLES BETWEEN CENTER LINES, THE INVERT ELEVATION AND THE SIZE OF ALL PIPES. HOLES SHALL BE A MINIMUM OF 4" TO A MAXIMUM OF 6" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE TO BE INSTALLED.
2. FORM TROUGH TO DIRECT FLOW FROM INLET(S) TO OUTLET FOR ALL PIPES. DEPTH OF TROUGH SHALL BE EQUAL ½ DIAMETER OF OUTLET PIPE.
3. REFER TO SITE REMEDIATION PLANS 594000-30K-02C AND 594000-30K-4C 594000-30K-05C FOR LOCATIONS, ELEVATIONS AND PIPE SIZES.
4. PRECAST REINFORCED CONCRETE RISER SECTIONS SHALL CONFORM TO ASTM C478. RUBBER GASKETS FOR JOINTS SHALL CONFORM TO ASTM C443.
5. FOR ADDITIONAL NOTES SEE DRAWING 594000-150-01.



NOTE: CONTRACTOR TO VERIFY PROJECTION & LOCATION OF ANCHOR BOLTS FROM CERTIFIED VENDOR DWGS PRIOR TO PLACING CONCRETE.

ANCHOR BOLT DETAIL

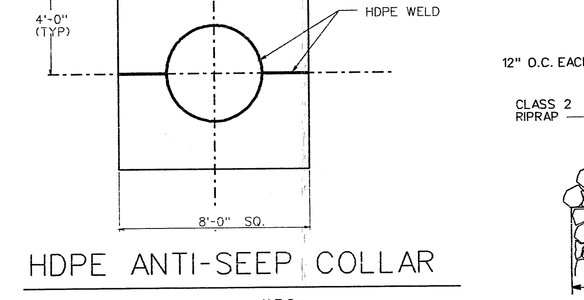


NOTE:
SLOPE AS REQUIRED TO MAINTAIN STABILITY OF TRENCH SIDEWALL OR PROVIDE SHEETING TO INSURE SAFETY OF PERSONNEL AND PROTECT ADJACENT STRUCTURES

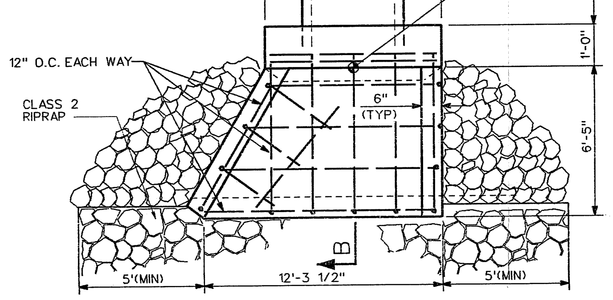
NOTE:
REFER TO SPECIFICATION 02201 FOR ADDITIONAL INFORMATION

(EXCAVATION/BACKFILL)

TYPICAL TRENCH DETAIL
N.T.S.



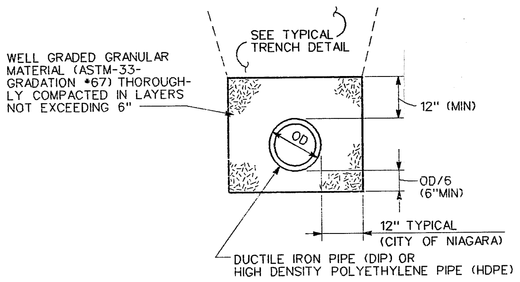
HDPE ANTI-SEEP COLLAR
N.T.S.



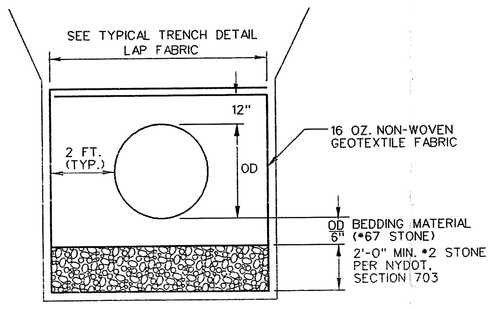
PLAN

CONCRETE HEADWALL NOTES:

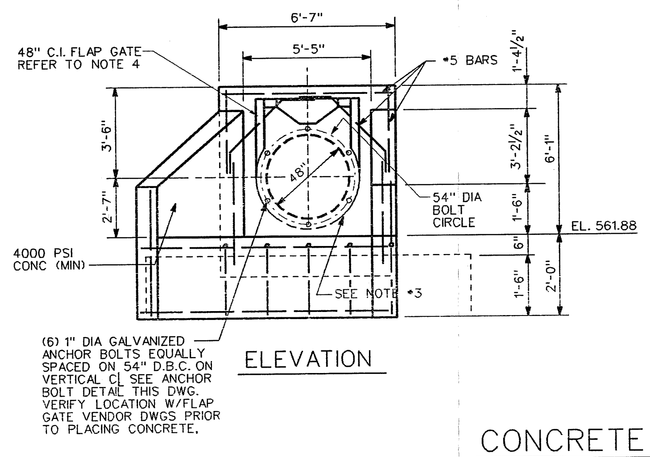
1. CONCRETE SHALL HAVE NOT LESS THAN 4000 PSI 28-DAY COMPRESSIVE STRENGTH.
2. ALL REINFORCEMENT SHALL BE ASTM A615, GR60, SIZE •5 BARS
3. SEE DRAWING. 594000-30K-05C FOR HEADWALL LOCATION.
4. FLAP GATE SHALL BE 48 INCH DIAMETER TYPE SF, MODEL •R-5050-SF48 BY NEENAH FOUNDRY COMPANY OR APPROVED EQUAL. FLAP GATE BODY SHALL BE CAST IRON ASTM A126-B. THE HINGE ARMS SHALL BE HIGH TENSILE BRONZE ASTM B584-CA865 AND HINGE PIN SHALL BE TYPE 304 STAINLESS STEEL. FLAP GATE SHALL BE MOUNTED TO CONCRETE WITH SIX 1" DIA. ANCHOR BOLTS. PROVIDE NEOPRENE SEAT BETWEEN HEADWALL AND VALVE BODY.



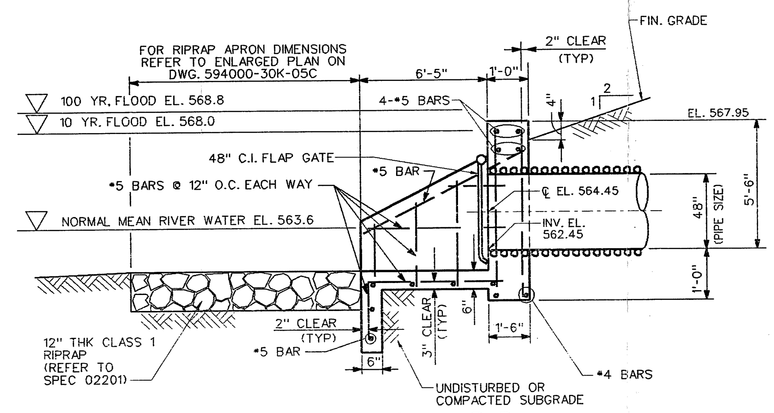
TYPICAL BEDDING DETAIL A
N.T.S.



TYPICAL BEDDING DETAIL FOR UNSTABLE SUBGRADE
N.T.S.



ELEVATION



SECTION B-B

CONCRETE HEADWALL DETAIL
REFER TO ENLARGED PLAN ON DWG. 594000-30K-05C
N.T.S.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	9/29/94	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		JTG
0	3/15/95	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)		JTG
1	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	BARBER/GERVAIS
CHECKED BY	J.GERVAIS
SUPERVISOR	J.GERVAIS
LEAD ENGR./SPEC.	
PROJECT	R. MARGUCCIO
CLIENT	OXYCHEM/OLIN

RELEASE DATE
INITIALS
APP.DATE 9/13/95
APP.DATE

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

STORM DRAINAGE
SECTIONS AND DETAILS

SCALE	DRAWING NUMBER	REV.
NOTED	594000-30K-13	1

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K13.DET

WRK. PKG. SUB-CONTRACT PKG. DIST. CODE

REDUCED PRINT SCALES

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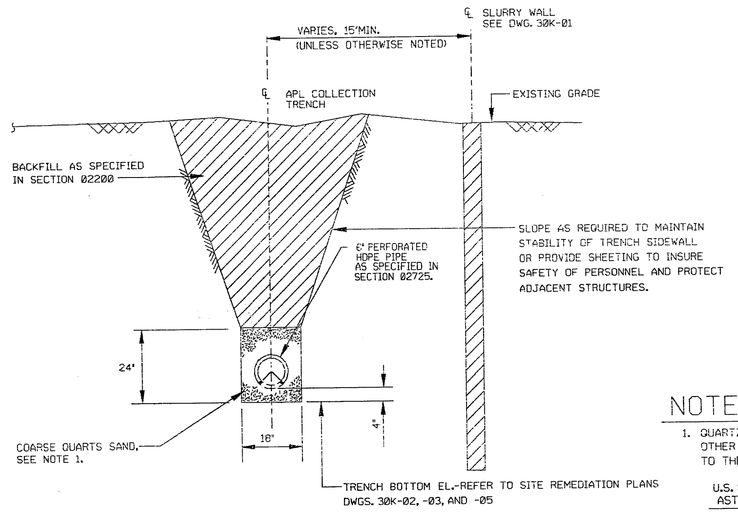


(REFER TO DWG. 30K-02 THRU -05)

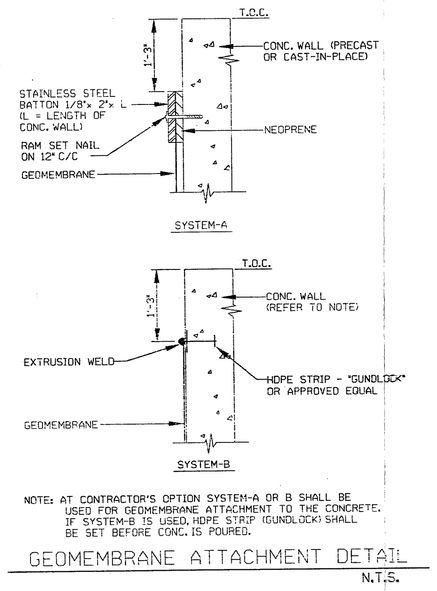
APL COLLECTION TRENCH - TYPICAL SECTION

NTS.

NOTES:

1. QUARTZ SAND SHALL BE FREE OF LOAM, DUST AND OTHER FOREIGN PARTICLES CONFORMING TO THE FOLLOWING GRADATION:

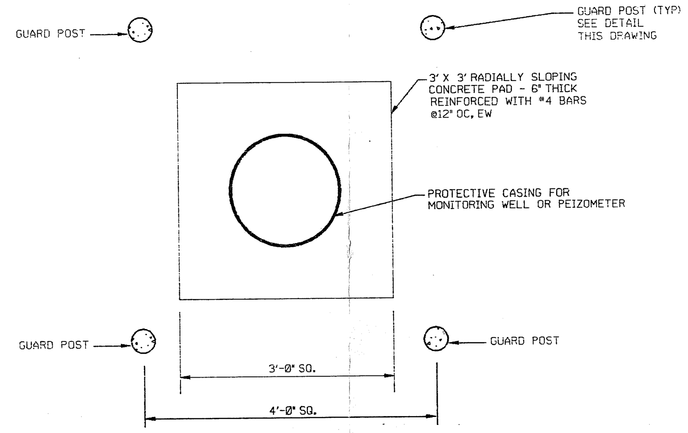
U.S. STANDARD ASTM SIEVE	PERCENT PASSING BY WEIGHT
⅜- IN	100
NO. 4	95-100
NO. 16	45-80
NO. 50	10-30
NO. 100	2-10



NOTE: AT CONTRACTOR'S OPTION SYSTEM-A OR B SHALL BE USED FOR GEOMEMBRANE ATTACHMENT TO THE CONCRETE. IF SYSTEM-B IS USED, HDPE STRIP (GUNDLOCK) SHALL BE SET BEFORE CONC. IS POURED.

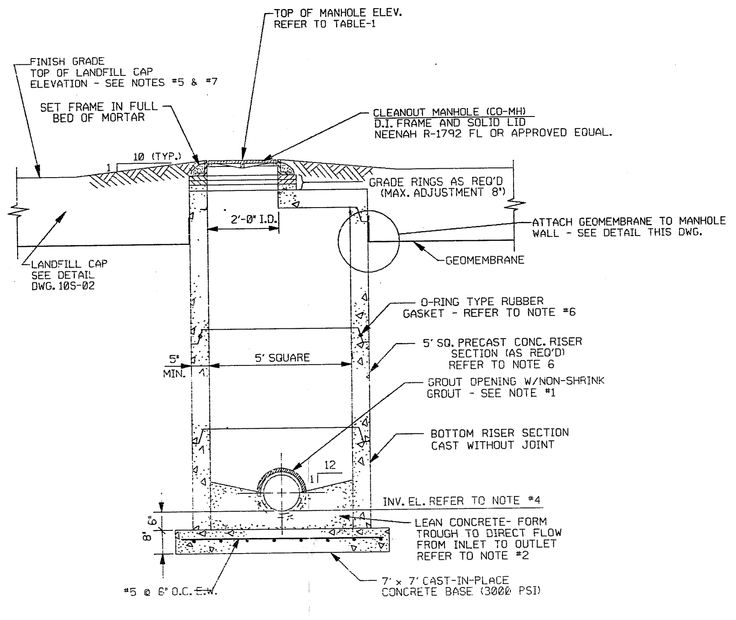
GEOMEMBRANE ATTACHMENT DETAIL

N.T.S.



MONITORING WELL AND PIEZOMETER PROTECTION PLAN

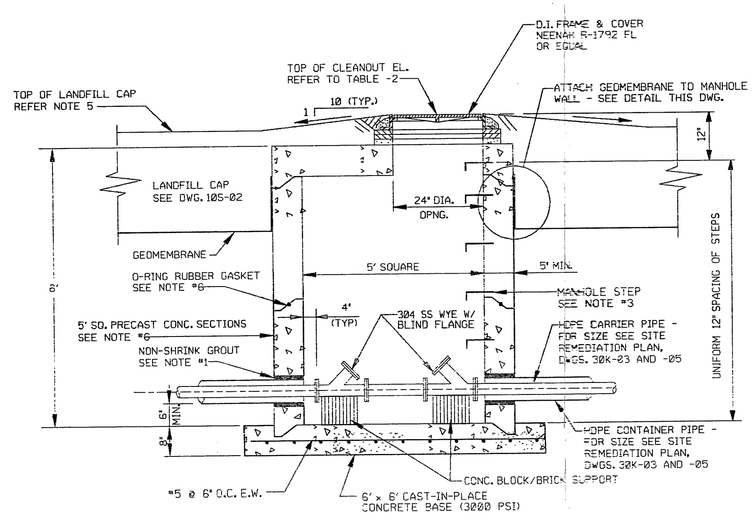
N.T.S.



(REF. DWG. 30K-02-03-05)

TYPICAL PRECAST REINFORCED CONCRETE CLEANOUT MANHOLE (CO-MH)

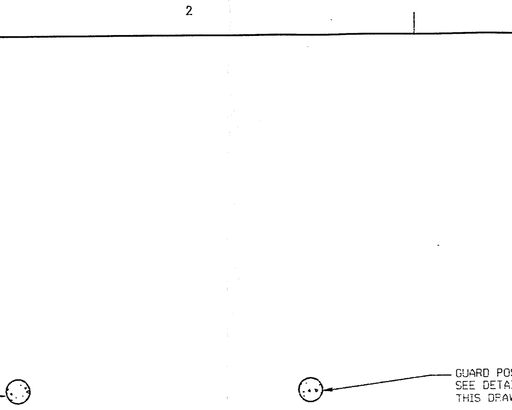
N.T.S.



(REF. DWG. 30K-03 AND 30K-05)

INLINE CLEANOUT DETAIL

N.T.S.



GUARD POST DETAIL

N.T.S.

TABLE -1
TOP OF CO-MH ELEVATION

CO-MH *	TOP OF MANHOLE EL.
CO-MH 1	578.0
CO-MH 2	576.3
CO-MH 3	575.6
CO-MH 4	575.6
CO-MH 5	575.6
CO-MH 6	575.6
CO-MH 7	578.0

TABLE -2
TOP OF IN LINE CLEANOUT ELEVATION

CO *	TOP OF CLEANOUT EL.
CO 1	576.0
CO 2	576.0
CO 3	576.0
CO 4	576.0
CO 5	576.0
CO 6	576.0
CO 7	576.0

GENERAL NOTES: CLEANOUT MANHOLE, AND INLINE CLEANOUT DETAILS

1. OPENINGS FOR PIPE IN PRECAST BASE AND RISER UNITS SHALL BE PREFORMED. THE CONTRACTOR SHALL FURNISH THE FABRICATOR WITH ANGLES BETWEEN CENTER LINES, THE INVERT ELEVATIONS AND THE SIZE OF ALL PIPES. HOLES SHALL BE A MINIMUM OF 4" TO A MAXIMUM OF 6" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE TO BE INSTALLED.
2. FORM TROUGH TO DIRECT FLOW FROM INLET(S) TO OUTLET FOR ALL PIPES. DEPTH OF TROUGH SHALL BE EQUAL TO ½ DIAMETER OF OUTLET PIPE.
3. MANHOLE STEPS SHALL BE NEENAH R-1982W, ALUMINUM OR APPROVED EQUAL.
4. REFER TO SITE REMEDIATION PLANS FOR LOCATIONS, INVERT ELEVATIONS AND PIPE SIZES.
5. FOR TOP OF LANDFILL CAP ELEVATIONS AT CLEANOUTS, SEE SITE GRADING PLAN DWG. 10U-02 THRU 10U-05. SLOPE FINISH GRADE AWAY FROM STRUCTURE.
6. PRECAST REINFORCED CONCRETE SECTIONS SHALL CONFORM TO ASTM C478. RUBBER GASKETS FOR JOINTS SHALL CONFORM TO ASTM C443.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED
A	1/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	DRK
B	8/24/95	REVISED TITLE		
C	9/8/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)		

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED

DWG.NO.	REFERENCE DRAWINGS

DWG.NO.	REFERENCE DRAWINGS

FLUOR DANIEL

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DESIGNED BY	A. BUMB/U. KUMTHEKAR
CHECKED BY	J. GERVAIS
SUPERVISOR	J. GERVAIS
RELEASE DATE	
LEAD ENGR./SPEC.	U. KUMTHEKAR
INITIALS	
PROJECT	R. MARGUCCIO
APP.DATE	
CLIENT	OXYCHEM/OLIN
APP.DATE	

MANUAL CHANGES MADE - YES ☐ NO ☐ DWG. FILE UPDATED - YES ☐ NO ☐ MODEL UPDATED - YES ☐ NO ☐ CADD DRAWING No. 10230K08 8/25/95

OXYCHEM/OLIN
REMEDIALDESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

APL COLLECTION SYSTEM
SECTIONS AND DETAILS

SCALE | DRAWING NUMBER 594000-30K-08 | REV. C

WRK. PKG. | DIST. CODE | SUB-CONTRACT PKG.

REDUCED PRINT SCALES

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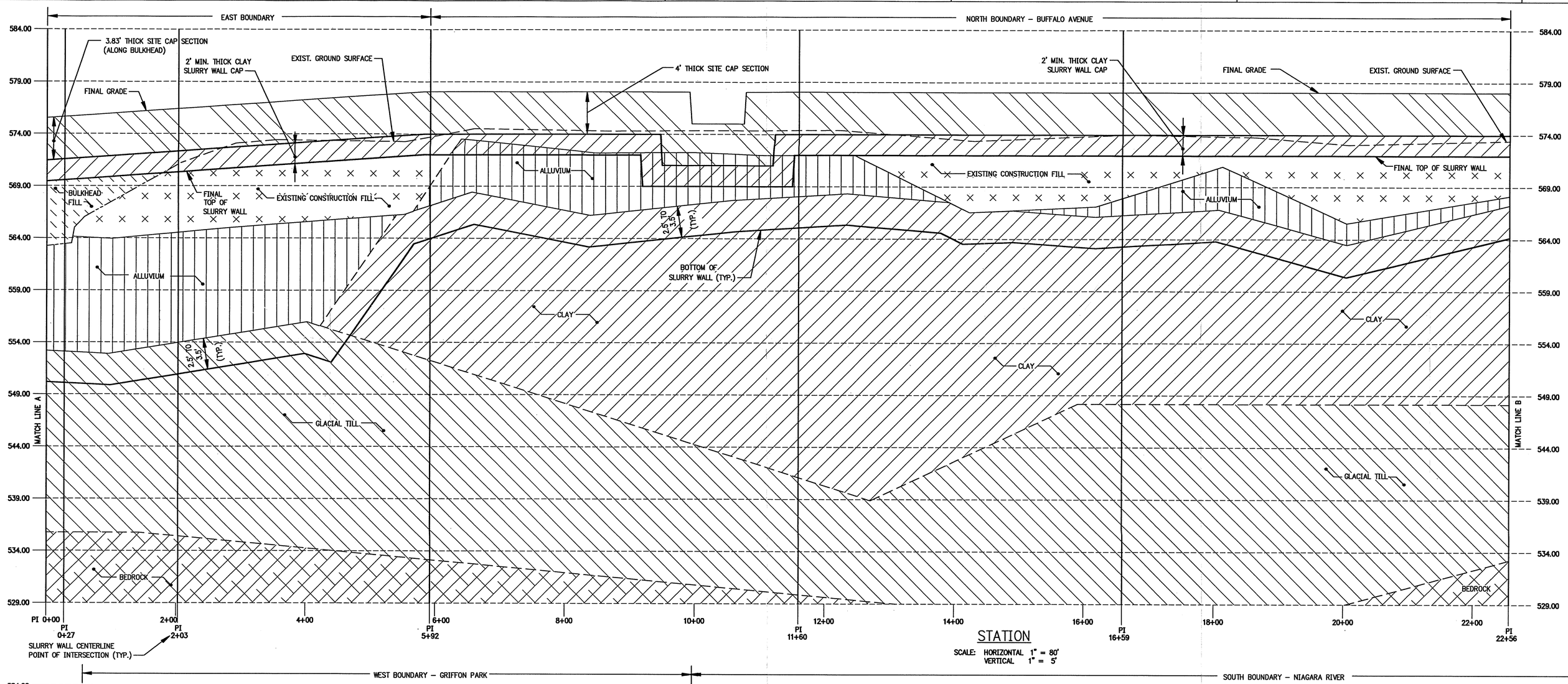
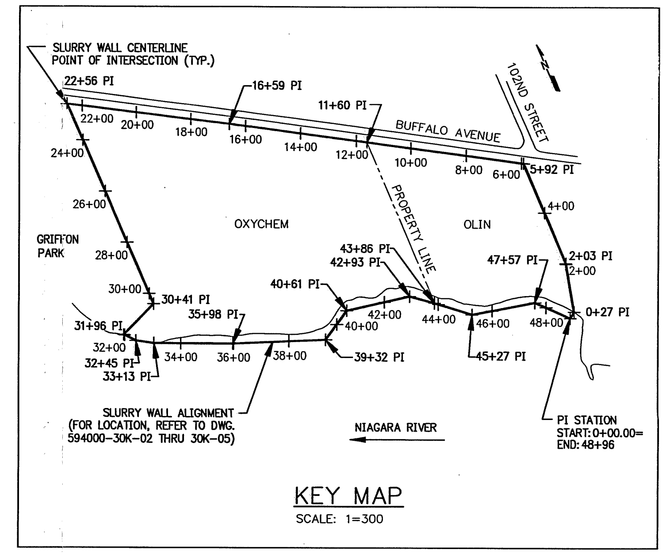
GINGTSBOH 09/07/1995 12:05

Thu Sep 7 12:34:52 1995 k:\plot_jobs\BUNDSPRT.ctf - J:\235940B8\ENV\10230K08.DGN

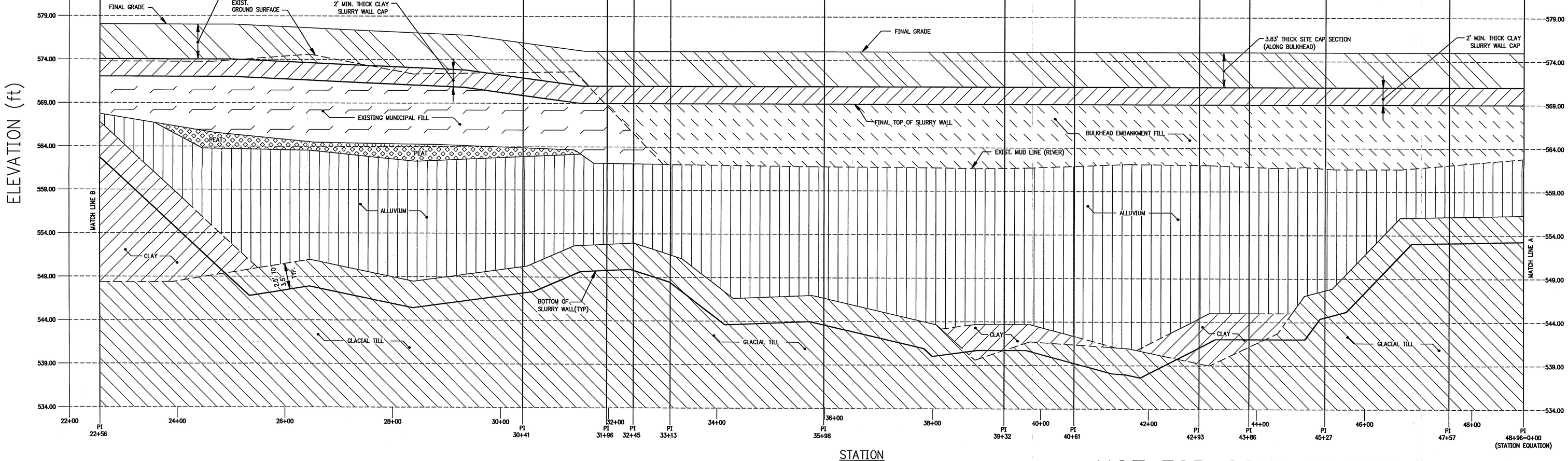


NOTES:

1. DATA CONCERNING SUBSURFACE CONDITIONS HAS BEEN OBTAINED FROM BORINGS PERFORMED DURING THE PREDESIGN FIELD ACTIVITIES. BORING LOGS ARE INCLUDED IN APPENDIX A OF THE PREDESIGN FIELD ACTIVITIES REPORT.
2. A TWO FOOT THICK MIN. CLAY SLURRY WALL CAP IS TO BE INSTALLED ON TOP OF THE SLURRY WALL ALONG ITS ENTIRE LENGTH.
3. SLURRY WALL WILL BE KEYED INTO THE UNDERLYING GLACIAL TILL/CLAY 2.5 FEET TO 3.5 FEET BELOW ANY WEATHERED ZONE.



KEY MAP
SCALE: 1=300



NOT FOR CONSTRUCTION

0 40 80 FT.
UNLESS NOTED OTHERWISE

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG.NO.	REFERENCE DRAWINGS	DWG.NO.	REFERENCE DRAWINGS
A	01/29/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	FGS	DRK									
B	09/15/95	ENGINEERING REPORT SUBMITTAL (FINAL)		JTG									

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DESIGNED BY	G. KURYLEC	
CHECKED BY	J. GERVAIS	
SUPERVISOR	W. SHANNON	RELEASE DATE 9/15/95
LEAD ENGR./SPEC.	J. GERVAIS	INITIALS
PROJECT	R. MARGUCCIO	APP.DATE 9/15/95
CLIENT	OXYCHEM / OLIN	APP.DATE

OXYCHEM / OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SLURRY WALL PROFILE

SCALE: AS NOTED
DRAWING NUMBER: 594000-30K-09
REV.: B

MANUAL CHANGES MADE – YES ☐ NO ☐ DWG. FILE UPDATED – YES ☐ NO ☐ MODEL UPDATED – YES ☐ NO ☐ CADD DRAWING No. 10230K9B 09-15-95

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SUB-CONTRACT PKG.
WRK. PKG.
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