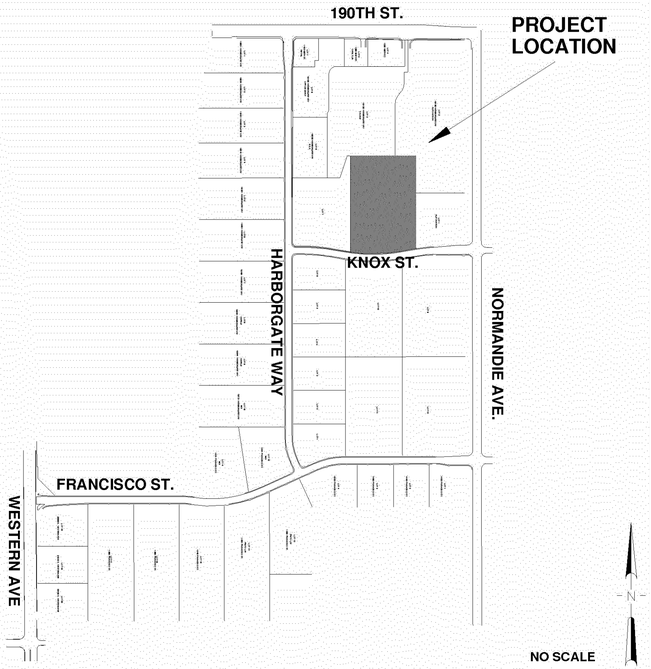

PROJECT LOCATION MAP

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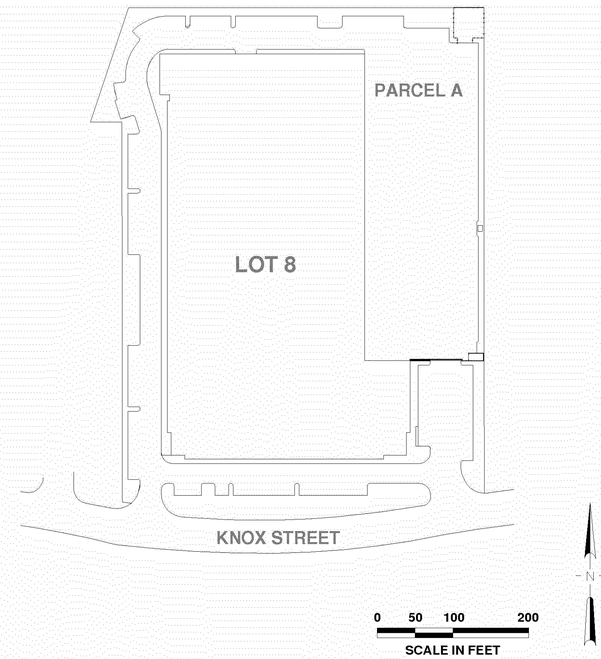
SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
1	G-1	COVER SHEET/DRAWING INDEX
2	G-2	GENERAL NOTES
3	C-1	BIOREMEDIATION AMENDMENT AND SVE PIPING LAYOUT
4	C-2	SUPPLEMENTAL REMEDIATION PIPING LAYOUT
5	C-3	CIVIL DETAILS - BIOREMEDIATION PIPING TRENCHES AND VAULTS
6	C-4	CIVIL DETAILS - BIOREMEDIATION PIPING TRENCHES AND VAULTS
7	C-5	CIVIL DETAILS - BIOREMEDIATION VAULTS
8	C-6	CIVIL DETAILS - BIOREMEDIATION VAULTS
9	C-7	CIVIL DETAILS - SOIL VAPOR EXTRACTION AND VAPOR MITIGATION PIPING
10	C-8	CIVIL DETAILS - REMEDIATION EQUIPMENT COMPOUND
11	C-9	CIVIL DETAILS - SOIL VAPOR EXTRACTION PIPING MANIFOLDS
12	C-10	CIVIL DETAILS - SUPPLEMENTARY PIPING, TRENCHES, AND VAULTS
13	C-11	PLOT OF SURVEY DATA ON SITE PLAN



LOT 8 MAP

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

LOT 8
BIOREMEDIATION AMENDMENT AND SOIL VAPOR EXTRACTION SYSTEM

PROJECT NO. 28882-540

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

COVER SHEET/DRAWING INDEX

Date: MAY 2006
Scale: AS SHOWN
File No. 28882D01

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 1 of 13
Drawing No. G-1
Issue 8

(540)28882D01-SHEET G-1.DWG

BOE-C6-0051061

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REQUIREMENTS.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND LOCATIONS SHOWN PRIOR TO COMMENCING WORK. ANY CONFLICTS WITH DETAILS AND NOTES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER IN WRITING.

3. DETAILS TAKE PRECEDENCE OVER GENERAL DRAWINGS. WHERE NOTES CONFLICT WITH ANY DRAWING, THE MOST RESTRICTIVE SHALL APPLY. WHERE CONFLICTS EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IMMEDIATELY. NO CHANGES OR ADDITIONS TO THE SCOPE OF WORK DEPICTED HEREIN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.

4. CONTRACTOR SHALL OBTAIN ANY/ALL NECESSARY CONSTRUCTION PERMITS, INCLUDING ELECTRICAL AND PLUMBING PERMITS AND SCHEDULE ANY REQUIRED INSPECTIONS. THE CONTRACTOR SHALL MAINTAIN COPIES OF ANY PERMITS AT THE JOB SITE FOR AGENCY INSPECTION AND PROVIDE A COPY TO THE ENGINEER PRIOR TO BEGINNING WORK.

5. CONTRACTOR SHALL LOCATE ALL UTILITIES AND PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY UTILITIES DAMAGED BY THE CONTRACTOR AND PROVIDE FOR SERVICE CONTINUATION DURING REPAIRS AT HIS EXPENSE.

6. UTILITY CROSSINGS AND DEPTHS WITHIN THE PARCEL BOUNDARIES ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION.

7. LOCATIONS OF UTILITIES OUTSIDE THE PARCEL BOUNDARY ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO VERIFY UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHALL BE PROTECTED.

8. THE CONTRACTOR SHALL MAINTAIN AN ORDERLY AND CLEAN JOB SITE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION RELATED TRASH, DEBRIS, AND EXCESS MATERIALS.

9. THE CONTRACTOR'S LAYDOWN AREA FOR MATERIALS SHALL BE COORDINATED WITH THE ENGINEER AND OTHER ON-SITE CONTRACTORS. SECURITY FOR CONTRACTOR'S EQUIPMENT AND MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR.

10. THE ELEVATION OF FEATURES (UTILITIES AND FOUNDATIONS) SHALL BE CONFIRMED WITH THE HALEY & ALDRICH FIELD ENGINEER AND SITE CONSTRUCTION MANAGER BEFORE EXCAVATING TRENCHES THAT CROSS FEATURES.

11. ALL OPEN EXCAVATIONS SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE OSHA REQUIREMENTS.

12. INSTALLATION OF HDPE PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES. HDPE PIPE SHALL BE STORED AND HANDLED SO AS NOT TO DAMAGE THE PIPE.

13. HDPE PIPE SHALL BE JOINED BY SOCKET FUSION WELDING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES. REQUIREMENTS FOR FUSION TIME, TEMPERATURE, AND PRESSURE SHALL BE FOLLOWED. ALL PIPE JOINTS SHALL ALIGN NATURALLY AND BE STRESS-FREE.

14. PVC PIPE SHALL BE JOINED BY SOLVENT WELDING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL PIPE JOINTS SHALL ALIGN NATURALLY AND BE STRESS FREE.

15. NEW BIOAMENDMENT WELLS WILL BE INSTALLED AND STUBBED OUT ABOVE GROUND SURFACE BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR COMPLETING WELLHEADS AT ELEVATIONS INDICATED ON DRAWINGS.

16. ALL EXISTING SVE WELLS SHALL BE CUT AND CAPPED APPROXIMATELY 4 FEET BELOW GRADE BY THE CONTRACTOR TO FACILITATE SITE GRADING ACTIVITIES . THE CONTRACTOR SHALL VERIFY THIS DEPTH WITH THE HALEY & ALDRICH ENGINEER PRIOR CUTTING AND CAPPING THE WELLS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND RE-EXCAVATING THESE WELLS FOR CONNECTION TO THE PIPING NETWORK.

17. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR ENSURING THAT A UNIFORM, SLOPED BEDDING AND COVER FOR SVE PIPING THAT CONTINUOUSLY SUPPORTS THE PIPE AT A MINIMUM ½ PERCENT SLOPE IS INSTALLED.

18. ELEVATIONS INDICATED ON DRAWINGS C-1 THROUGH C-4 ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO WORK. NO CONTRACT MODIFICATION WILL BE ALLOWED FOR DIFFERENCES BETWEEN FIELD CONDITIONS AND DESIGN ELEVATIONS.

19. ALL HDPE BENDS SHALL BE A MINIMUM OF 3' IN RADIUS.

20. HDPE TO PVC TRANSITION FITTINGS CONNECTIONS SHALL BE ENCASED IN A MINIMUM 1.5 SACK CONCRETE SLURRY TO PREVENT MOVEMENT.

21. ALL UNDERGROUND PVC AND HDPE PIPES SHALL BE SUPPORTED WITH JIGS OR TEMPLATES DURING CONSTRUCTION TO MAINTAIN THE REQUIRED SPACING BETWEEN PIPES AND SVE PIPE SLOPE. JIGS AND TEMPLATES SHALL BE DESIGNED AND PLACED SO THAT THEY DO NOT PINCH THE PIPE OR CONSTRICT THE FLOW OF FLUID WHEN IN USE.

22. ALL ABOVE GROUND PIPING SHALL BE SUPPORTED BY THE GROUND SURFACE AND/OR ATTACHED TO UNISTRUT (OR EQUIVALENT) SUPPORTS. SPACING BETWEEN PIPE SUPPORTS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO PREVENT SAGGING.

23. ALL PIPE TERMINATIONS INSIDE VAULTS SHALL BE CORRECTLY LABELED WITH THE ASSOCIATED WELLHEAD IDENTIFICATION LABEL USING STAMPED STAINLESS STEEL TAGS.

24. SECONDARY CONTAINMENT WALLS WITHIN THE SVE COMPOUND SHALL BE CONSTRUCTED OF CMU BLOCKS AND GROUT.

25. THE SLAB AT THE REMEDIATION EQUIPMENT COMPOUND WILL BE DESIGNED AND INSTALLED BY OTHERS.

26. THE NEW KNOCKOUT WATER STORAGE / BIOAMENDMENT TRANSFER TANK SHALL BE A 6,200 GALLON SNYDER VERTICAL STORAGE TANK, PART NUMBER 8220--MT OR EQUIVELANT, WITH STAND. TANK STAND SHALL BE ANCHORED ACCORDING TO STRUCTURAL ENGINEERS RECOMMENDATIONS.

27. SOIL VAPOR EXTRACTION MANIFOLDS SHALL BE CONSTRUCTED ENTIRELY WITHIN THE SVE COMPOUND.

28. HDPE PIPING SHALL BE 1 INCH DIAMETER SDR-11.

29. ALL PVC PIPING, VALVES, AND FITTINGS SHALL BE SCHEDULE 80.

30. ALL PIPING SHALL BE PERMANENTLY LABELED AT EACH END WITH ASSOCIATED WELLHEAD IDENTIFICATION LABEL BEFORE COVERING WITH CONCRETE SLURRY OR SOIL.

31. HDPE AND PVC PIPING SHALL BE INSTALLED, TESTED, AND COVERED WITH CONCRETE SLURRY OR SAND ONE LAYER AT A TIME,IN ACCORDANCE WITH THE LAYOUT AND DETAILS PROVIDED ON SHEETS C-1 THROUGH C-9.

32. OPEN TRENCHES SHALL BE COMPLETELY SURROUNDED BY TEMPORARY SAFETY FENCING AT ALL TIMES WHEN WORK IS NOT BEING DONE IN THE IMMEDIATE AREA. THE SAFETY FENCING SHALL BE MAINTAINED UNTIL THE TRENCH IS BACKFILLED AND COMPACTED TO THE EXISTING GRADE.

33. PRIOR TO BACKFILL, ALL NEW HDPE PIPING SHALL BE HYDROSTATICALLY PRESSURE TESTED AT 150% OF THE DESIGN SERVICE PRESSURE. IN ACCORDANCE WITH BOEING PROTOCOL, AFTER INITIAL PRESSURIZATION OF THE HDPE PIPE, THE CONTRACTOR SHALL ALLOW A MINIMUM EXPANSION PERIOD OF 20 MINUTES. IF NO LEAKS ARE OBSERVED, THE PIPE WILL BE PRESSURIZED TO THE INITIAL TEST PRESSURE AND THE PIPE PRESSURE TESTED FOR A MINIMUM OF ONE HOUR. A LOSS OF PRESSURE WILL INDICATE A LEAK REQUIRING REPAIR AND RE-TESTING AT THE CONTRACTORS EXPENSE. THE HALEY & ALDRICH ENGINEER MUST WITNESS PRESSURE TESTING.

34. PRIOR TO BACKFILL, ALL NEW HDPE PIPING SHALL BE FLUSHED WITH WATER TO REMOVE ANY GRIT, SAND, AND DEBRIS FROM THE PIPE. FLUSHING SHALL NOT EXCEED THE HDPE DESIGN PRESSURE.

35. PRIOR TO BACKFILL, ALL NEW PVC PIPING SHALL BE TESTED BY APPLYING LOW PRESSURE AIR TO THE PIPING. A WATER/SOAP LIQUID WILL BE APPLIED TO EACH CONNECTION. IF A LEAK IN THE CONNECTION IS OBSERVED, THE LEAK WILL BE REPAIRED AND RE-TESTED AT THE CONTRACTOR'S EXPENSE. THE HALEY & ALDRICH ENGINEER MUST WITNESS TESTING.

36. THE CONTRACTOR SHALL NOT BACKFILL THE TRENCHES UNLESS APPROVAL IS PROVIDED BY THE HALEY & ALDRICH ENGINEER.

37. CONTINUOUS MAGNETIC LOCATOR TAPE SHALL BE INSTALLED IN ALL TRENCHES DURING BACKFILLING FOR IDENTIFICATION PURPOSES.

38. SOIL TRENCH BACKFILL, WHERE INDICATED, SHALL BE MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY FROM THE GROUND SURFACE TO 12 INCHES BELOW GROUND SURFACE. BACKFILL BELOW 12 INCHES SHALL BE MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR ANY DAMAGE TO THE PIPE DURING BEDDING AND BACKFILL PLACEMENT.

39. COMPACTED BACKFILL SHALL BE TESTED IN ACCORDANCE WITH ASTM D1557 TO DOCUMENT MINIMUM COMPACTION REQUIREMENTS ARE MET.

40. CONCRETE SLURRY, WHERE INDICATED, SHALL BE A MINIMUM 2 SACK MIX WHERE TRENCHES CROSS OTHER BELOW GRADE UTILITY LOCATIONS AND BUILDING FOOTINGS. SLURRY MIX AT OTHER LOCATIONS SHALL BE A MINIMUM 1-1/2 SACK MIX.

41. PRIOR TO BACKFILL, ALL PIPE TRENCHES SHALL BE SURVEYED FOR CENTERLINE OF TRENCH AND WELL LOCATIONS. ALL NEW PVC PIPING SHALL BE SURVEYED EVERY 20 LINEAR FEET AND AT PIPE CONNECTIONS, CHANGES IN DIRECTION, AND LOCATIONS WHERE SLOPE CHANGES.

42. ALL SURVEY WORK SHALL BE COMPLETED BY A CALIFORNIA REGISTERED LAND SURVEYOR. THE LAND SURVEYOR SHALL ONLY USE BENCHMARKS ESTABLISHED, OR USED BY, THE LOT 8 CONSTRUCTION / CIVIL ENGINEERING CONTRACTOR.

43. FINAL GROUND SURFACE ELEVATION IN LANDSCAPED AREAS SHALL BE CONFIRMED WITH THE HALEY & ALDRICH FIELD ENGINEER AND SITE CONSTRUCTION MANAGER BFORE EXCAVATING FOR VAULT INSTALLATION.

44. TRAFFIC RATED LIDS SHALL BE PROVIDED FOR BIOAMENDMENT VAULTS LOCATED OUTSIDE LANDSCAPE AREAS. NON-TRAFFIC RATED LIDS SHALL BE PROVIDED FOR ALL OTHER BIOAMENDMENT VAULTS.

45. THE CONTRACTOR SHALL REPLACE IN KIND ALL LANDSCAPE PLANTINGS AND GROUND COVERINGS DISTURBED OR DAMAGED BY THE WORK.

46. THE SEQUENCING OF INSTALLATION OF PIPING THAT CROSSES UTILITIES INSTALLED BY OTHERS SHALL BE COORDINATED WITH THE ENGINEER AND THE DEVELOPER'S CONTRACTOR AT LEAST 30 DAYS IN ADVANCE.

47. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND INTEGRITY OF EXISTING SVE AND GROUNDWATER MONITORING WELLS.

48. THE CONTRCTOR SHALL BE RESPONSIBLE FOR INSTALLING CHAIN LINK FENCE ON THE WEST AND SOUTH SIDES OF THE REMEDIATION EQUIPMENT COMPOUND. THE SVE COMPOUND CHAIN LINK FENCING SHALL INCLUDE PVC PRIVACY SLATS ON ALL SIDES AND GATES. THE COLOR SHALL BE SPECIFIED BY THE DEVELOPER.

49. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND PROTECTING EXISTING GROUNDWATER MONITORING WELLS. DAMAGE TO THE WELLS BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

50. ALL 1"Ø ELECTRICAL CONDUIT SHALL BE CONSTRUCTED WITH A MINIMUM 6" RADIUS SWEEP AT ALL BENDS.

51. ALL 4"Ø ELECTRICAL CONDUIT SHALL BE CONSTRUCTED WITH A MINIMUM 24" RADIUS SWEEP AT ALL BENDS.

52. THE MUNICIPAL SANITARY SEWER LATERAL SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC AND HAVE 1 CLEANOUT CONSTRUCTED EVERY 100 FEET AND AFTER EVERY 145° IN TOTAL DIRECTION CHANGE. THE ELEVATION WHERE THE PIPE WILL CONNECT TO THE EXISTING BUILDING LATERAL SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

53. ALL SUPPLEMENTARY PIPE TERMINATIONS IN SUB SURFACE STRUCTURES SHALL BE CAPPED WITH SOLVENT WELDED CAPS (PVC) OR HDPE CAPS WITH A MINIMUM BURIAL DEPTH OF 13" BELOW BOTTOM OF PAVEMENT.

54. 4"Ø HDPE LINE WITH SECONDARY CONTAINMENT SHALL HAVE A 4"Ø PRIMARY LINE WITH A MINIMUM 8"Ø SECONDARY PIPE. 2" Ø HDPE LINE WITH SECONDARY CONTAINMENT SHALL HAVE A 2"Ø PRIMARY LINE WITH A MINIMUM 4"Ø SECONDARY PIPE. THESE LINES SHALL BE PRESSURE TESTED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. A COPY OF THE MANUFACTURER SPECIFICATIONS SHALL BE PROVIDED TO BOEING FOR REVIEW PRIOR TO TESTING.

55. THE CONSTRUCTION STUB-OUT BOX SHOWN IN DETAIL EEE/C-10 SHALL BE BURRIED A MINIMUM OF 18" BELOW GRADE AND BE ENTIRELY WITHIN THE LANDSCPE AREA.

56. WATER SUPPLY LINE NOT SHOWN IN DETAILS. TO BE FIELD LOCATED AND CONSTRUCTED AROUND EXISTING REMEDIATION PIPES AND UTILITIES WITH A MINIMUM BURIAL DEPTH OF 18" BELOW FINISH GRADE.

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
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3	12/22/04	100% FINAL	GKM
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HALEY & ALDRICH
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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

GENERAL NOTES

Date: MAY 2006
Scale:
File No. 28882D02

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 2 of 13
Drawing No. G-2
Issue 8

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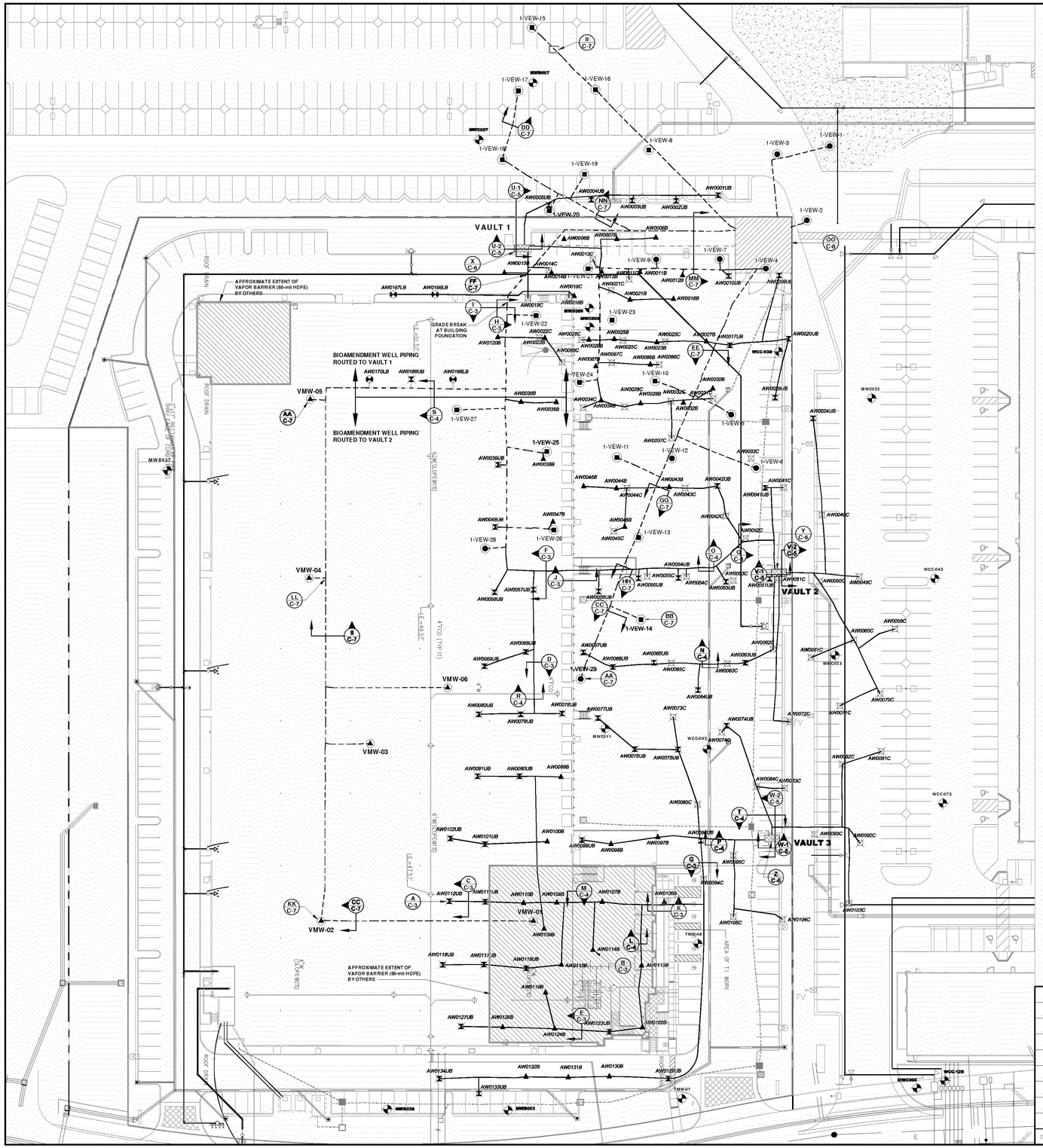

LEGEND

AW0170LB	LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
AW0001UB	UPPER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
AW0011B	UPPER/LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
AW0011C	C-SAND BIOAMENDMENT INJECTION WELL LOCATION
WCC-03S	EXISTING GROUNDWATER MONITORING WELL
1-VEW-9	SINGLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
1-VEW-14	DOUBLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
VMW-04	VAPOR MITIGATION WELL LOCATION
	BIOAMEDMENT PIPE TRENCH
	SOIL VAPOR EXTRACTION / VAPOR MITIGATION PIPE TRENCH
	COMBINED REMEDIATION PIPING TRENCH
	PARCEL BOUNDARY
	BIOAMENDMENT REMOTE FILL LINE
	SUPPLEMENTAL PIPE TRENCH (SEE SHEET C-2 FOR DETAILS)
VAULT 1	LOCATION OF NEW FLUSH MOUNTED VAULT FOR SUBSURFACE REMEDIATION PIPING
	LOCATION OF NEW FLUSH MOUNTED VAULT FOR ELECTRICAL CONDUIT AND SUPPLEMENTARY REMEDIATION PIPING
	SUBSURFACE CONSTRUCTION STUB-OUT BOX IN SUPPORT OF FUTURE EXTRACTION WELLS (SUPPLEMENTAL REMEDIATION PIPING)
	SUBSURFACE CONSTRUCTION STUB-OUT BOX IN SUPPORT OF FUTURE EXTRACTION WELLS (FUTURE GROUNDWATER EXTRACTION PIPE AND ELECTRICAL CONDUIT)
	FIRE LINE
	STORMDRAIN
	SWALE
	CATCH BASIN
NUMBER B / SHEET C-5	INDICATES DETAIL

ISSUE	DATE	REVISIONS	BY
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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

BIOREMEDIATION AMENDMENT AND SVE PIPING LAYOUT

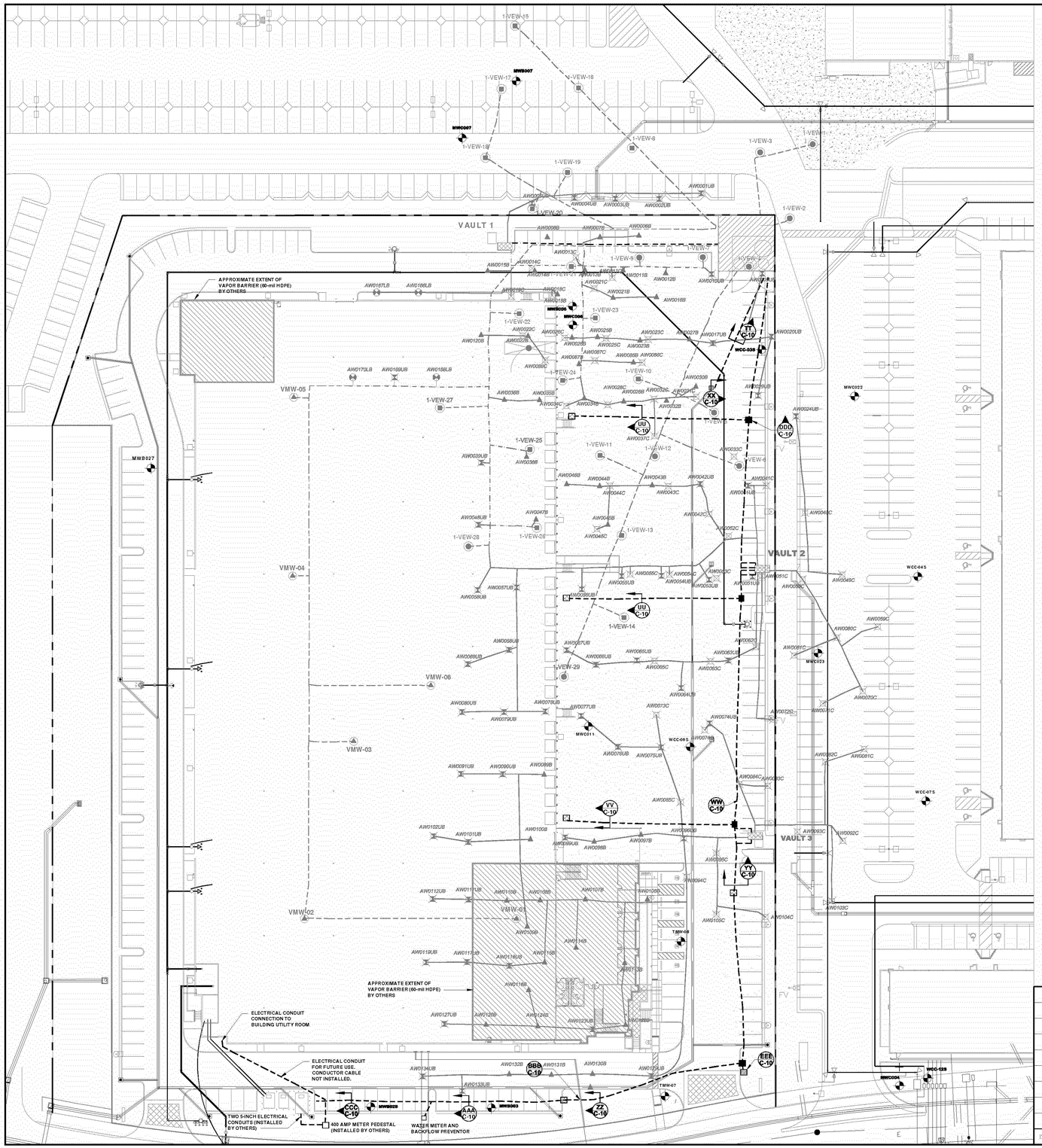
Date: MAY 2006
Scale: AS SHOWN
File No. 28882D03

0 40 80
SCALE IN FEET

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 3 of 13
Drawing No. C-1
Issue 8

(540) 28882D03-SHEET C-1.DWG

BOE-C6-0051063



LEGEND

- AW0170LB — LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AW0001UB — UPPER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AW0011B — UPPER/LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AW0011C — C-SAND BIOAMENDMENT INJECTION WELL LOCATION
- WCC-03S — EXISTING GROUNDWATER MONITORING WELL
- 1-VEW-9 — SINGLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
- 1-VEW-14 — DOUBLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
- VMW-04 — VAPOR MITIGATION WELL LOCATION
- BIOAMEDMENT PIPE TRENCH (SEE SHEET C-1 FOR DETAILS)
- SOIL VAPOR EXTRACTION / VAPOR MITIGATION PIPE TRENCH (SEE SHEET C-1 FOR DETAILS)
- COMBINED REMEDIATION PIPING TRENCH (SEE SHEET C-1 FOR DETAILS)
- PARCEL BOUNDARY
- BIOAMENDMENT REMOTE FILL LINE
- SUPPLEMENTAL PIPE TRENCH
- VAULT 1 — LOCATION OF NEW FLUSH MOUNTED VAULT FOR SUBSURFACE REMEDIATION PIPING
- LOCATION OF NEW FLUSH MOUNTED VAULT FOR ELECTRICAL CONDUIT AND SUPPLEMENTARY REMEDIATION PIPING
- SUBSURFACE CONSTRUCTION STUB-OUT BOX IN SUPPORT OF FUTURE EXTRATION WELLS (SUPPLEMENTAL REMEDIATION PIPING)
- SUBSURACE CONSTRUCTION STUB-OUT BOX IN SUPPORT OF FUTURE EXTRACTION WELLS (FUTURE GROUNDWATER EXTRACTION PIPE AND ELECTRICAL CONDUIT)
- FIRE LINE
- STORMDRAIN
- SWALE
- CATCH BASIN
- NUMBER B / SHEET C-5 — INDICATES DETAIL

ISSUE	DATE	REVISIONS	BY
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7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

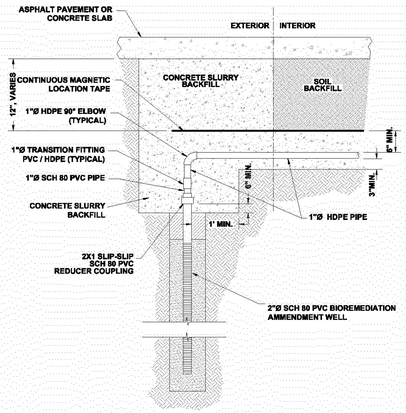
SUPPLEMENTAL REMEDIATION PIPING LAYOUT

Date: MAY 2006
Scale: AS SHOWN
File No. 28882D03

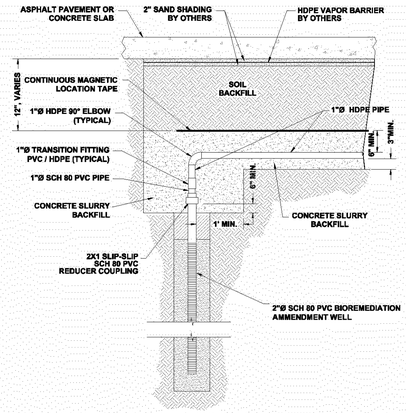
0 40 80
SCALE IN FEET

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 4 of 13
Drawing No. C-2
Issue 8

(540) 28882D03-SHEET C-2.DWG



A C-3 SINGLE BIOREMEDIATION AMENDMENT WELLHEAD (TYPICAL)
NOT TO SCALE



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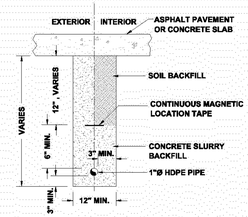
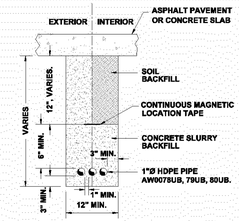


C C-3 BIOREMEDIATION AMENDMENT PIPING LATERAL TRENCH (TYPICAL)
NOT TO SCALE



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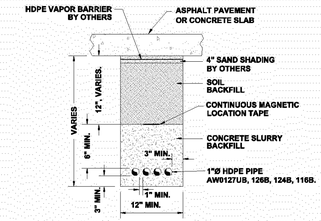
NOT TO SCALE



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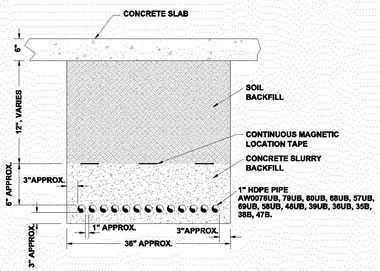

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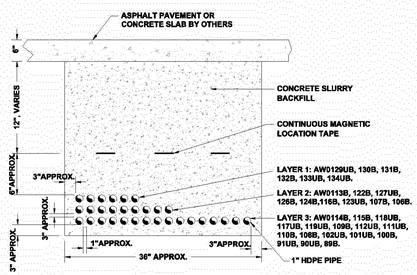

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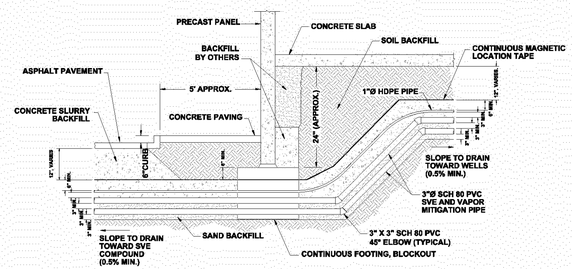
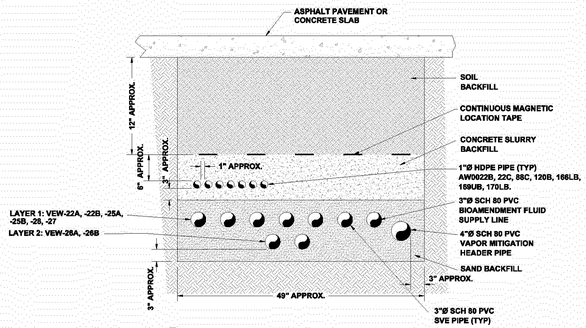
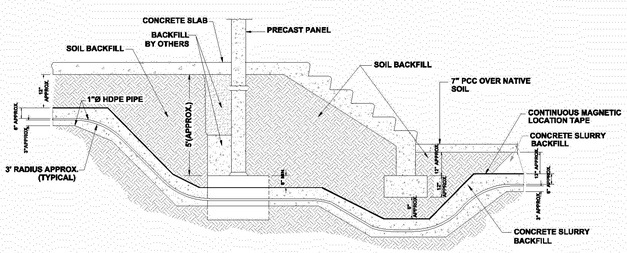
NOT TO SCALE



H C-3 BIOREMEDIATION AMENDMENT, SVE, AND VAPOR MITIGATION PIPING AT FOUNDATION
NOT TO SCALE



I C-3 SOIL VAPOR EXTRACTION, VAPOR MITIGATION, AND BIOAMENDMENT PIPING COMMON TRENCH
NOT TO SCALE



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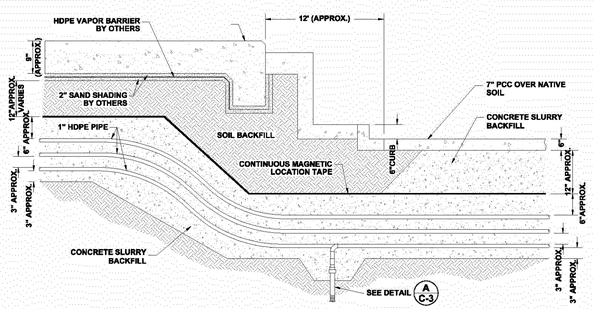
NOT TO SCALE



K C-3 BIOREMEDIATION AMENDMENT PIPING AT FOUNDATION
NOT TO SCALE

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
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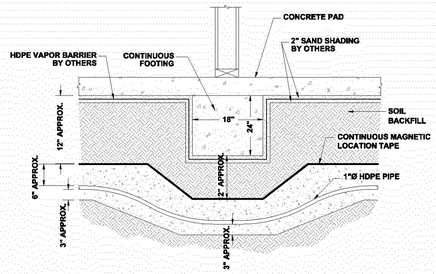
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS–BIOREMEDIATION PIPING TRENCHES AND VAULTS

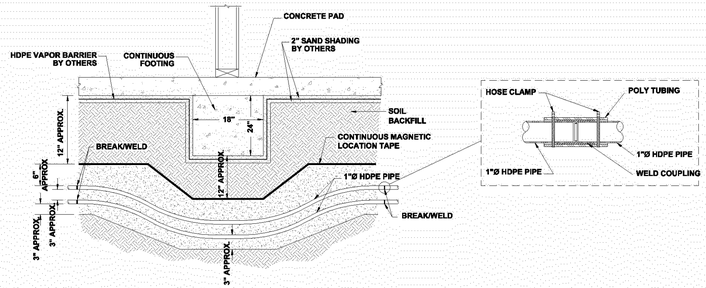
Date:	Scale:	File No.
MAY 2006	NOT TO SCALE	28882D05

Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	RMF
Sheet No.:	5 of 13
Drawing No.	C-3
Issue	8

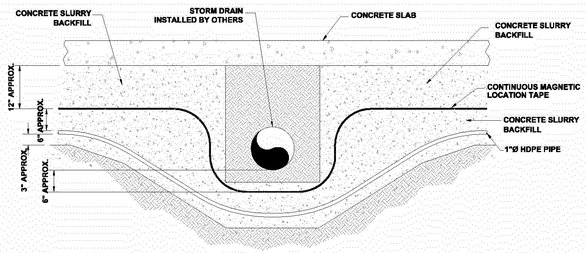
(540)28882D05-SHEET C-3.DWG



L C-4 BIOREMEDIATION AMENDMENT PIPING AT INTERIOR FOUNDATION (TYPICAL UNLESS OTHERWISE SPECIFIED)
NOT TO SCALE



M C-4 BIOREMEDIATION AMENDMENT PIPING AT INTERIOR FOUNDATION
NOT TO SCALE



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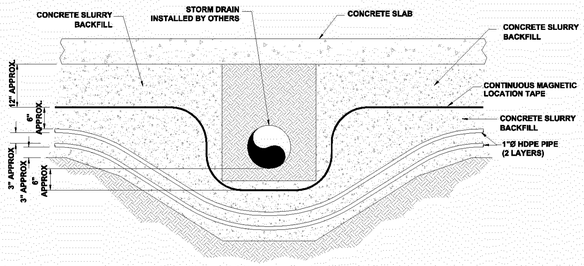
NOT TO SCALE



O C-4 BIOREMEDIATION AMENDMENT PIPE AT STORM DRAIN
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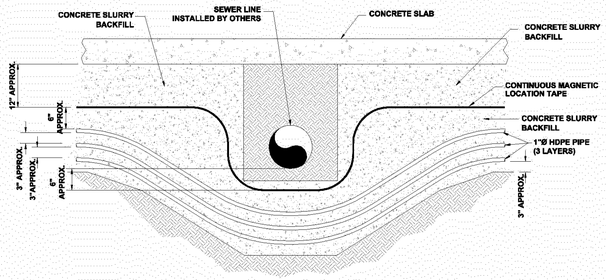

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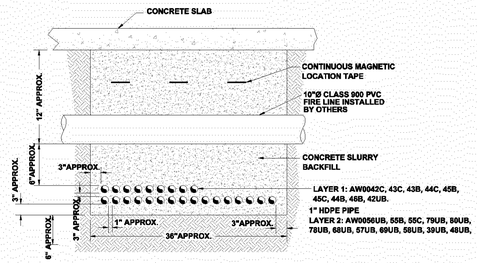
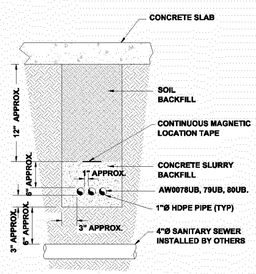
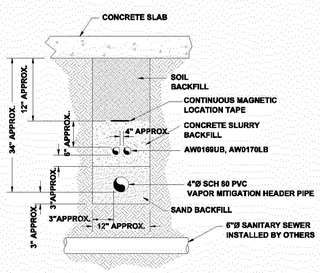
NOT TO SCALE



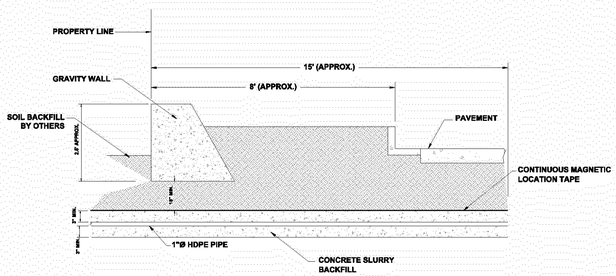
Q C-4 BIOREMEDIATION AMENDMENT PIPING AT FIRE LINE (TYPICAL)
NOT TO SCALE



R C-4 BIOREMEDIATION AMENDMENT PIPING AT SANITARY SEWER (TYPICAL UNLESS OTHERWISE SPECIFIED)
NOT TO SCALE



S C-4 BIOREMEDIATION AMENDMENT AND VAPOR MITIGATION PIPING AT SANITARY SEWER
NOT TO SCALE



T C-4 BIOREMEDIATION AMENDMENT PIPE AT GRAVITY WALL(TYPICAL)
NOT TO SCALE

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
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3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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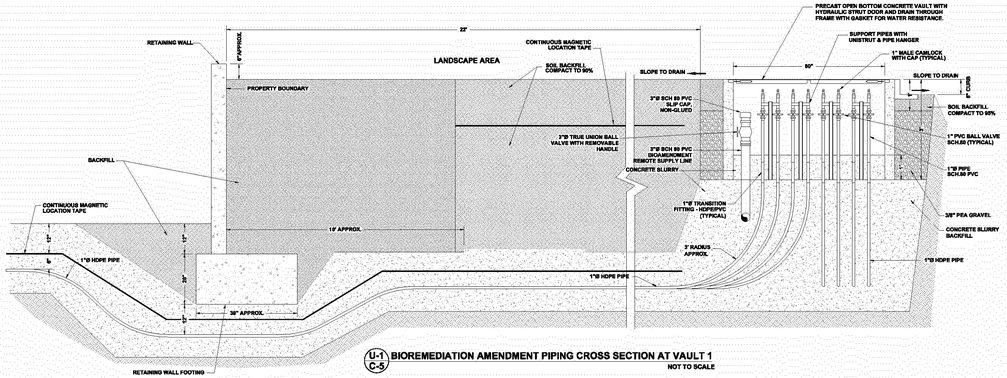
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS-BIOREMEDIATION PIPING TRENCHES AND VAULTS

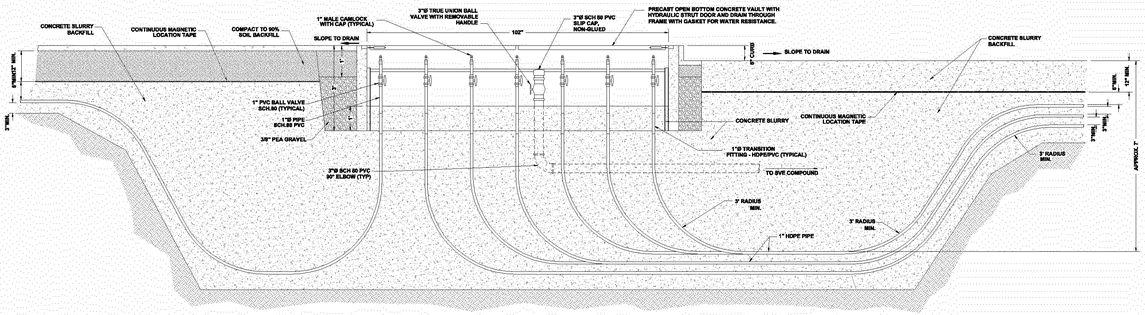
Date: MAY 2006
Scale: NOT TO SCALE
File No. 28882D06

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 6 of 13
Drawing No. C-4
Issue 8

(540)28882D06-SHEET C-4.DWG



U-1 C-5 BIOREMEDIATION AMENDMENT PIPING CROSS SECTION AT VAULT 1
NOT TO SCALE



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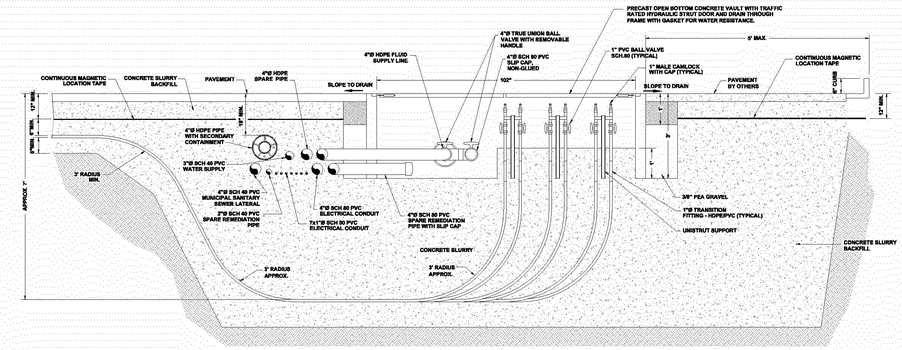

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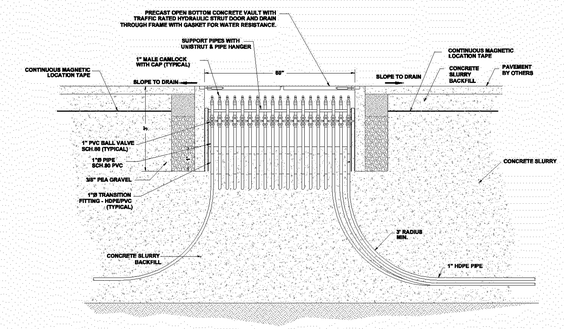
NOT TO SCALE



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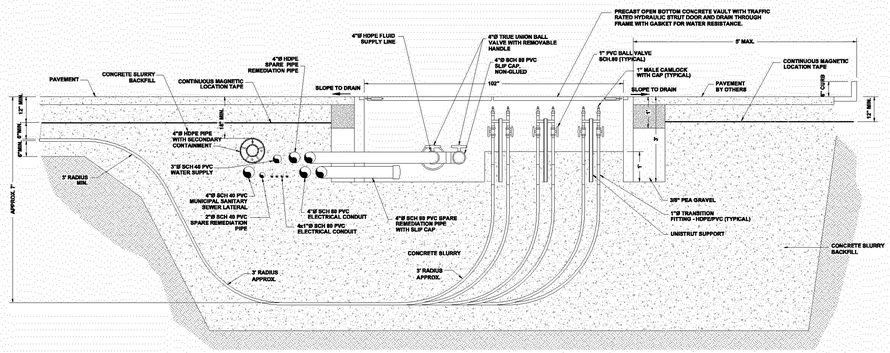
NOT TO SCALE



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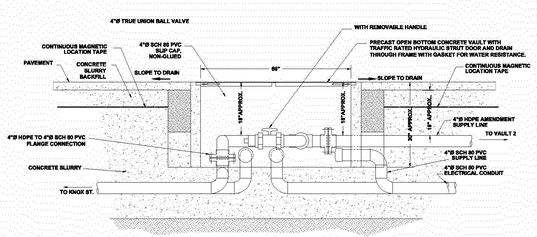
NOT TO SCALE



W-2 C-5 BIOREMEDIATION AMENDMENT PIPING CROSS SECTION AT VAULT 3
NOT TO SCALE

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
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4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
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0	8/16/04	50% DRAFT	GKM

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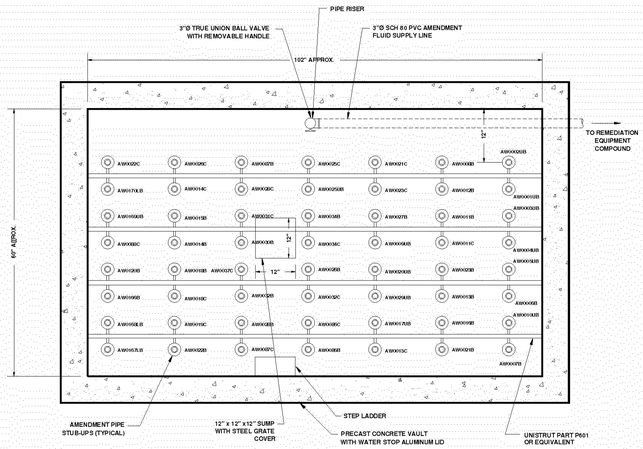
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS-BIOREMEDIATION VAULTS

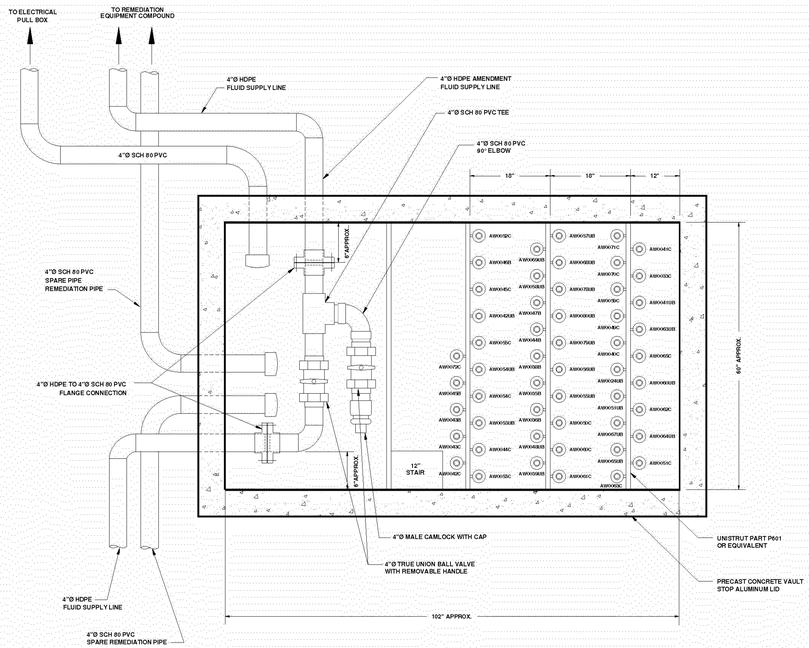
Date:	Scale:	File No.
MAY 2006	NOT TO SCALE	28882D07

Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	RMF
Sheet No.:	7 of 13
Drawing No.	C-5
Issue	8

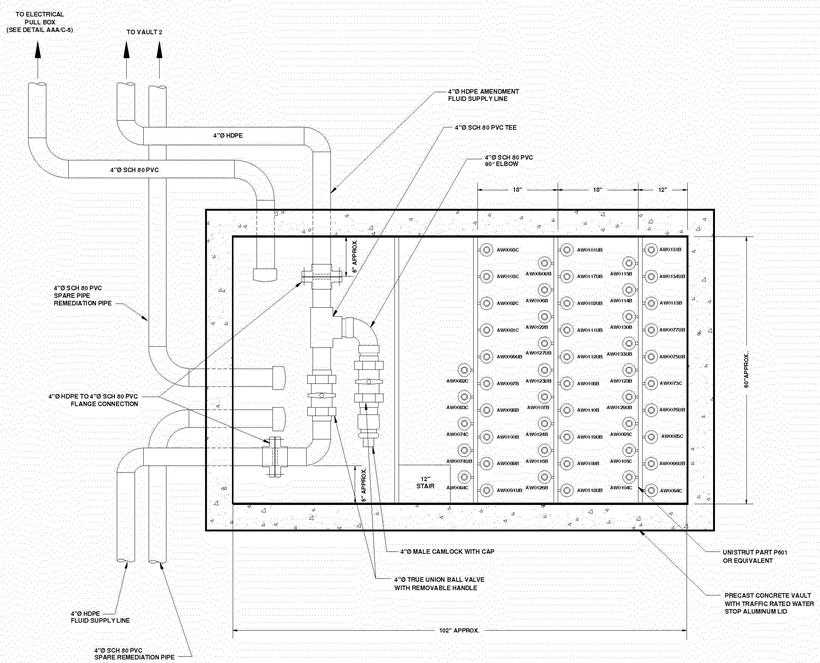
(540)28882D07-SHEET C-5.DWG



X C-6 BIOREMEDIATION AMENDMENT VAULT 1 - PLAN VIEW
NOT TO SCALE



Z C-6 BIOREMEDIATION AMENDMENT VAULT 2 - PLAN VIEW
NOT TO SCALE



Z C-6 BIOREMEDIATION AMENDMENT VAULT 3 - PLAN VIEW
NOT TO SCALE

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
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0	8/16/04	50% DRAFT	GKM

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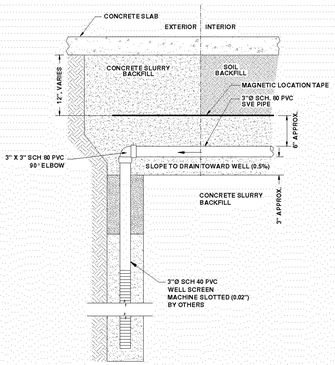
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS-BIOREMEDIATION VAULTS

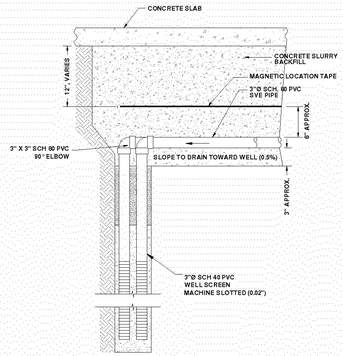
Date:	Scale:	File No.
MAY 2006	NOT TO SCALE	28882D07

Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	RMF
Sheet No.:	8 of 13
Drawing No.	C-6
Issue	8

(540)28882D07-SHEET C-6.DWG



AA C-7 3" SOIL VAPOR EXTRACTION AND VAPOR MITIGATION WELLHEAD (TYPICAL)
NOT TO SCALE



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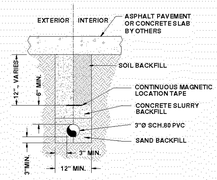
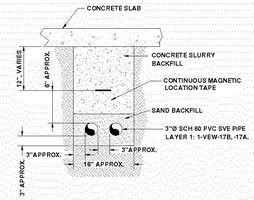
NOT TO SCALE



CC C-7 SOIL VAPOR EXTRACTION AND VAPOR MITIGATION PIPING LATERAL TRENCH(TYPICAL)
NOT TO SCALE



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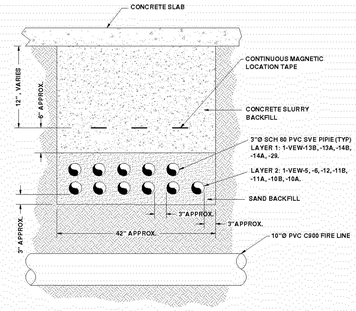
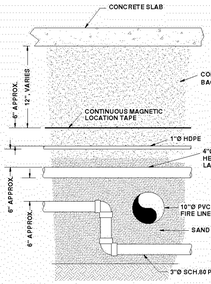
NOT TO SCALE



EE C-7 SOIL VAPOR EXTRACTION PIPING AT FIRE LINE
NOT TO SCALE



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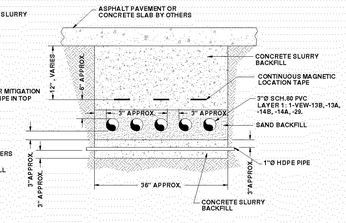
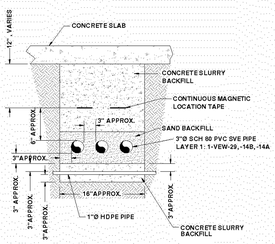
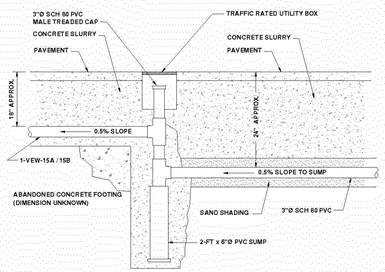
NOT TO SCALE



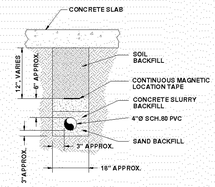
GG C-7 SOIL VAPOR EXTRACTION AND BIOREMEDIATION AMENDMENT TRENCH CROSSING (TYPICAL UNLESS SPECIFIED)
NOT TO SCALE



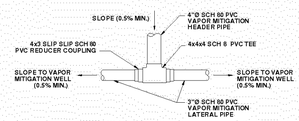
HH C-7 SOIL VAPOR EXTRACTION AND BIOREMEDIATION AMENDMENT TRENCH CROSSING
NOT TO SCALE



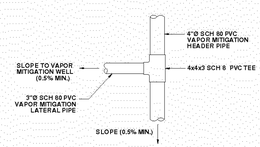
II C-7 VAPOR MITIGATION PIPING WITH SUMP AND CLEAN OUT
NOT TO SCALE



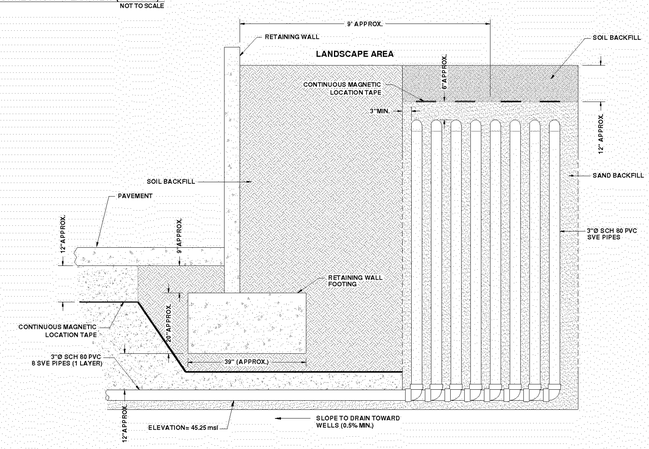
JJ C-7 VAPOR MITIGATION PIPING HEADER TRENCH
NOT TO SCALE



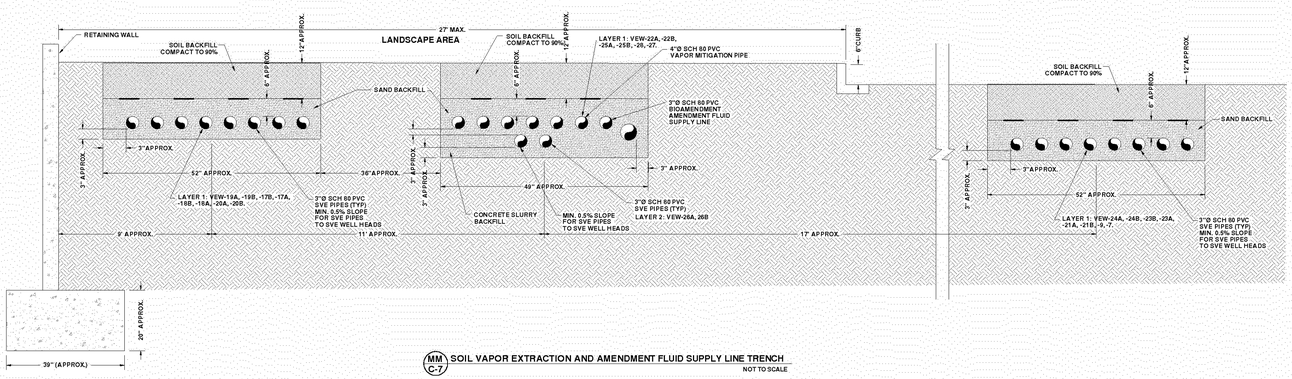
KK C-7 VAPOR MITIGATION LATERAL TO HEADER CONNECTION - PLAN VIEW
NOT TO SCALE



LL C-7 VAPOR MITIGATION LATERAL TO HEADER CONNECTION - PLAN VIEW (TYPICAL)
NOT TO SCALE



NN C-7 SOIL VAPOR EXTRACTION PIPING UNDER RETAINING WALL FOOTING (TYPICAL)
NOT TO SCALE



MM C-7 SOIL VAPOR EXTRACTION AND AMENDMENT FLUID SUPPLY LINE TRENCH
NOT TO SCALE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

HALEY & ALDRICH

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

Haley & Aldrich, Inc.
9040 FRIARS ROAD, SUITE 220
SAN DIEGO, CA 92108
Tel: (619) 280-9210
Fax: (619) 280-9415

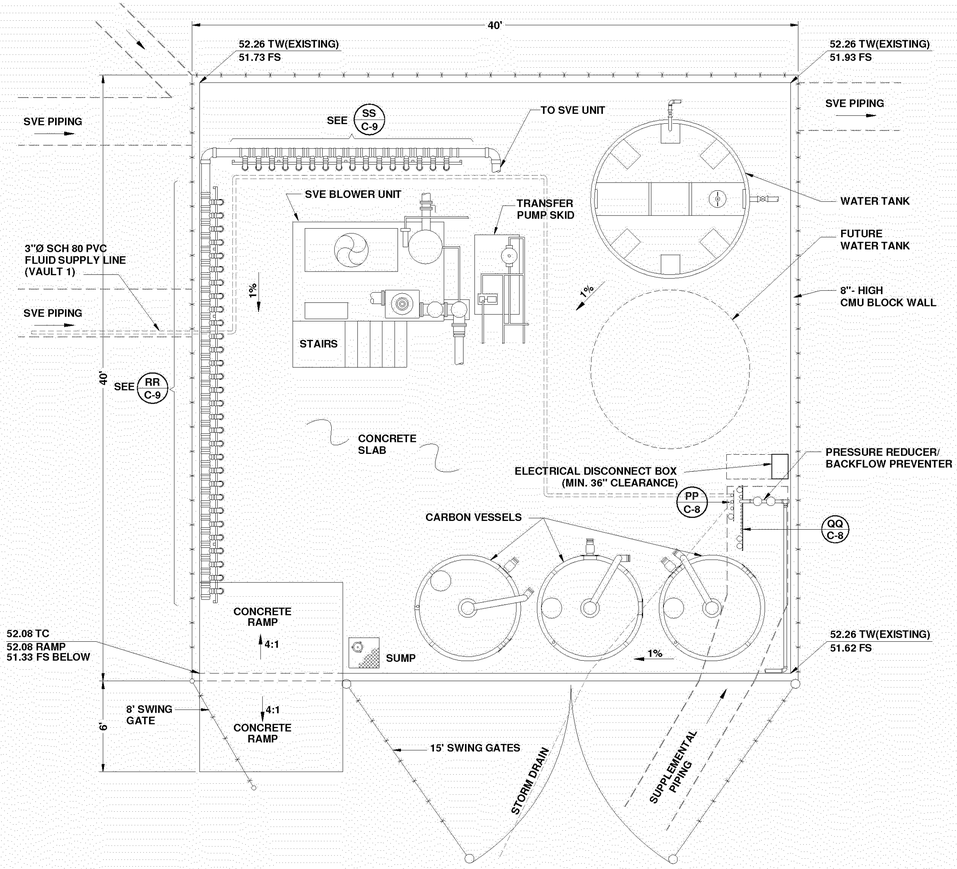
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAIL – SOIL VAPOR EXTRACTION/VAPOR MITIGATION PIPING

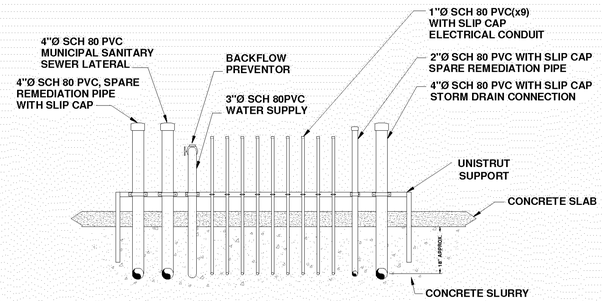
Date:	Scale:	File No.
MAY 2006	NOT TO SCALE	28882D08

Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	RMF
Sheet No.:	9 of 13
Drawing No.	C-7
Issue	8

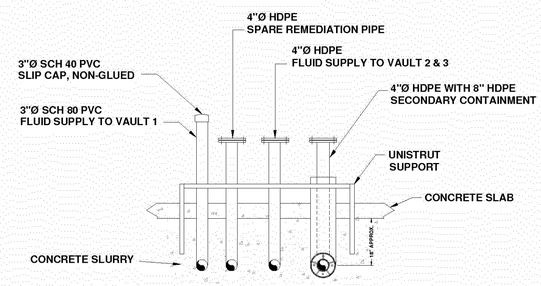
(540)28882D08-SHEET C-7.DWG



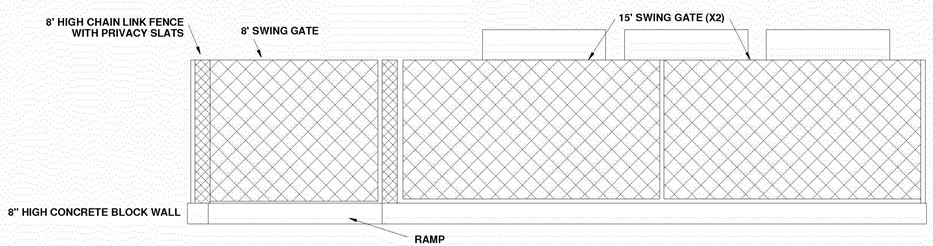
QQ C-8 REMEDIATION EQUIPMENT COMPOUND (PLAN)
NOT TO SCALE



QQ C-8 REMEDIATION PIPE MANIFOLD 2
NOT TO SCALE



PP C-8 REMEDIATION PIPING MANIFOLD 1
NOT TO SCALE



QQ C-8 REMEDIATION COMPOUND (SOUTH PROFILE)
NOT TO SCALE

NOTES

1. 1% → INDICATES DIRECTION AND SLOPE TO SUMP
2. GREY INDICATES SUBSURFACE FEATURES
3. ALL ABOVE GROUND PIPING WITHIN THE SVE COMPOUND SUPPORTED WITH UNISTRUT, OR EQUIVALENT SUPPORT.
4. MINIMUM HEIGHT OF SECONDARY CONTAINMENT IS 4" ABOVE PAD FINISH GRADE.
5. SOIL VAPOR EXTRACTION BLOWER, CARBON VESSELS, PUMPS, WATER TANKS, AND OTHER REMEDIATION EQUIPMENT SHOWN IN DETAIL KK IS SCHEMATIC AND SUBJECT TO CHANGE.
6. MANIFOLDS SHOWN IN DETAILS MM AND NN CONSTRUCTED WITHIN THE SECONDARY CONTAINMENT OF THE REMEDIATION COMPOUND.
7. ALL EQUIPMENT IN COMPOUND PROVIDED AND INSTALLED BY OTHERS. SIZES, CAPACITIES, AND EXACT LOCATION NOT VERIFIED BY HALEY & ALDRICH.

TW = TOP OF WALL
FS = FINISHED SURFACE (OR SLAB)
CMU = CONCRETE MASONRY UNIT
TC = TOP OF CURB

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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Fax: (619) 280-9415

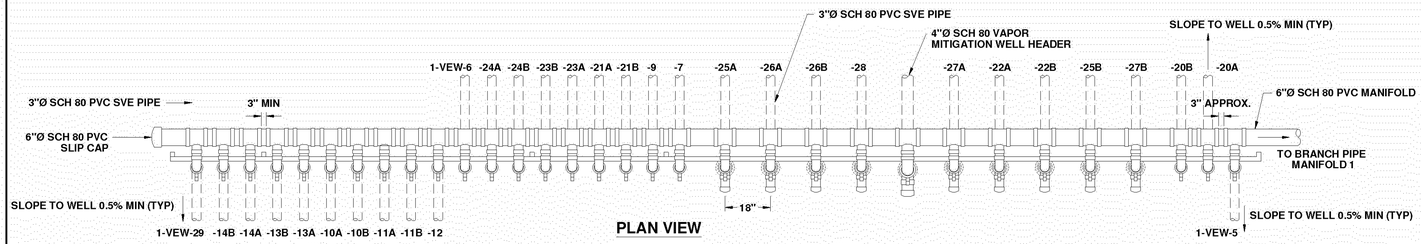
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS – REMEDIATION EQUIPMENT COMPOUND

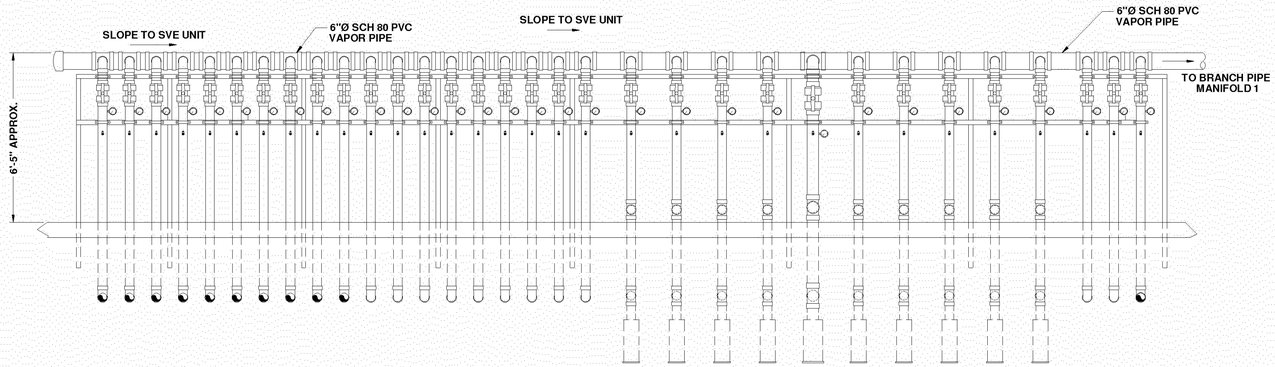
Date: MAY 2006
Scale: NOT TO SCALE
File No. 28882D09

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 10 of 13
Drawing No. C-8
Issue 8

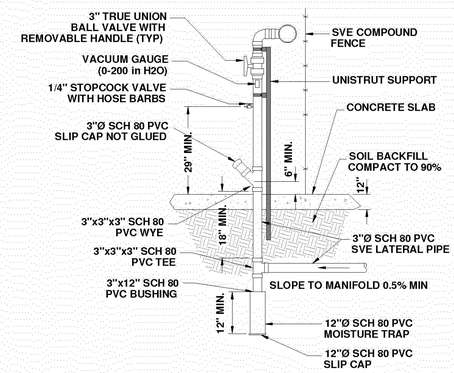
(540)28882D09-SHEET C-8.DWG



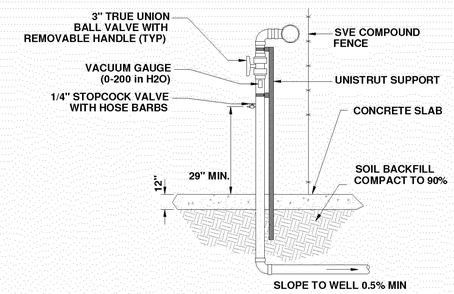
PLAN VIEW



ELEVATION

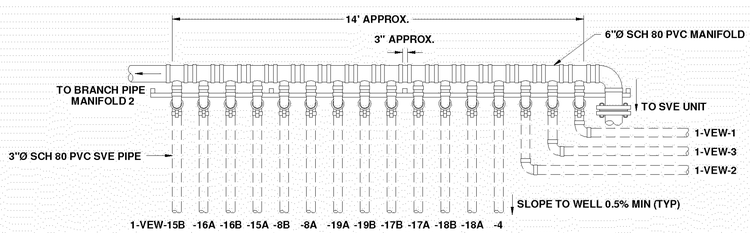


SECTION WITH SUMP

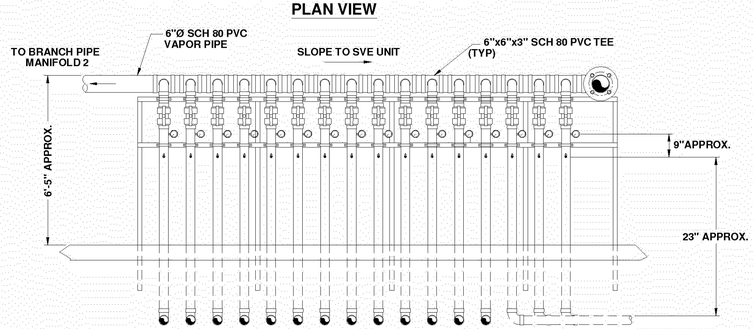


SECTION WITHOUT SUMP

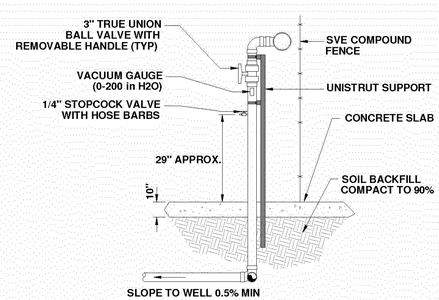
RR C-9 BRANCH PIPE MANIFOLD 2 - 3 VIEWS



PLAN VIEW



ELEVATION



SECTION

SS C-9 BRANCH PIPE MANIFOLD 1 - 3 VIEWS

NOT TO SCALE

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

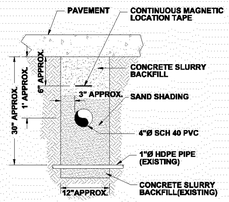
CIVIL DETAILS – SOIL VAPOR EXTRACTION PIPING MANIFOLDS

Date: MAY 2006
Scale: NOT TO SCALE
File No. 28882D10

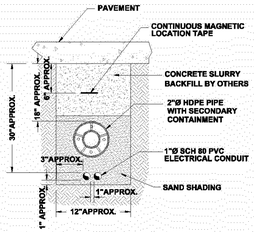
Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 11 of 13
Drawing No. C-9
Issue 8

(540)28882D10-SHEET C-9.DWG

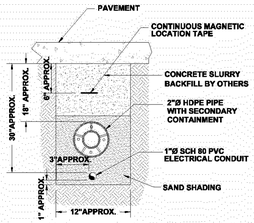
BOE-C6-0051071



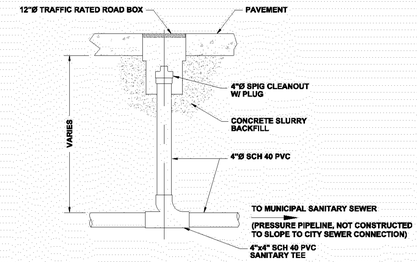
TT C-10 STORM DRAIN AT BIOREMEDIATION PIPING (TYPICAL) NOT TO SCALE



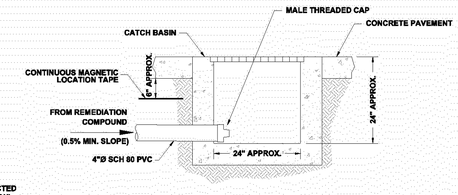
UU C-10 EXTRACTION WELL PIPING AND ELECTRICAL CONDUIT NOT TO SCALE



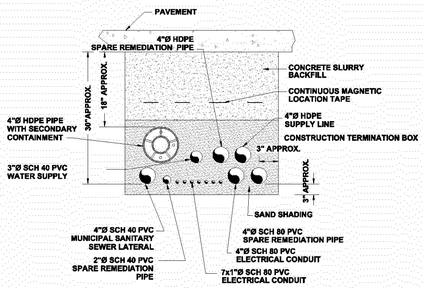
VV C-10 EXTRACTION WELL PIPING AND ELECTRICAL CONDUIT NOT TO SCALE



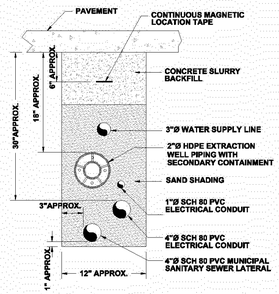
WW C-10 MUNICIPAL SANITARY SEWER LATERAL CLEANOUT (TYPICAL) NOT TO SCALE



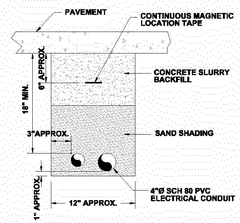
XX C-10 STORM DRAIN LATERAL AT CATCH BASIN NOT TO SCALE



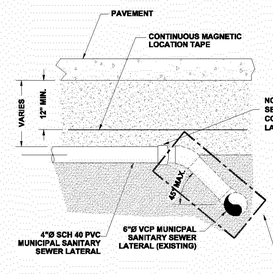
YY C-10 SUPPLEMENTARY REMEDIATION PIPE NOT TO SCALE



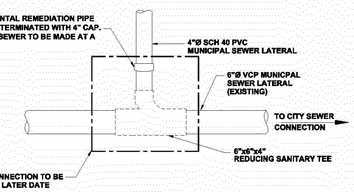
ZZ C-10 SUPPLEMENTAL REMEDIATION PIPE TRENCH NOT TO SCALE



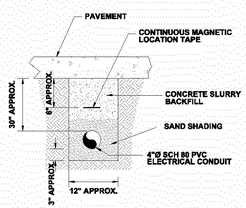
AAA C-10 SUPPLEMENTAL REMEDIATION PIPE TRENCH NOT TO SCALE



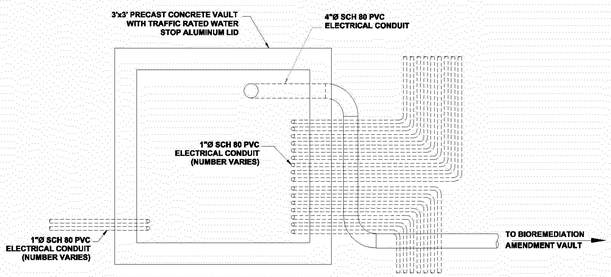
BBB-1 C-10 MUNICIPAL SEWER LATERAL CONNECTION (PROFILE) NOT TO SCALE



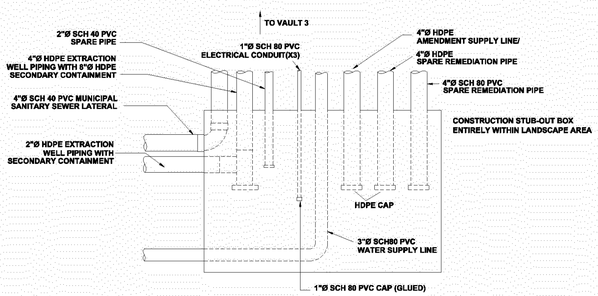
BBB-2 C-10 MUNICIPAL SEWER LATERAL CONNECTION (PLAN) NOT TO SCALE



CCC C-10 ELECTRICAL CONDUIT (TYPICAL) NOT TO SCALE



DDD C-10 ELECTRICAL CONDUIT VAULT (PLAN) (TYPICAL) NOT TO SCALE



EEE C-10 CONSTRUCTION STUB-OUT BOX AT KNOX STREET PLAN VIEW (SCHEMATIC) NOT TO SCALE

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
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1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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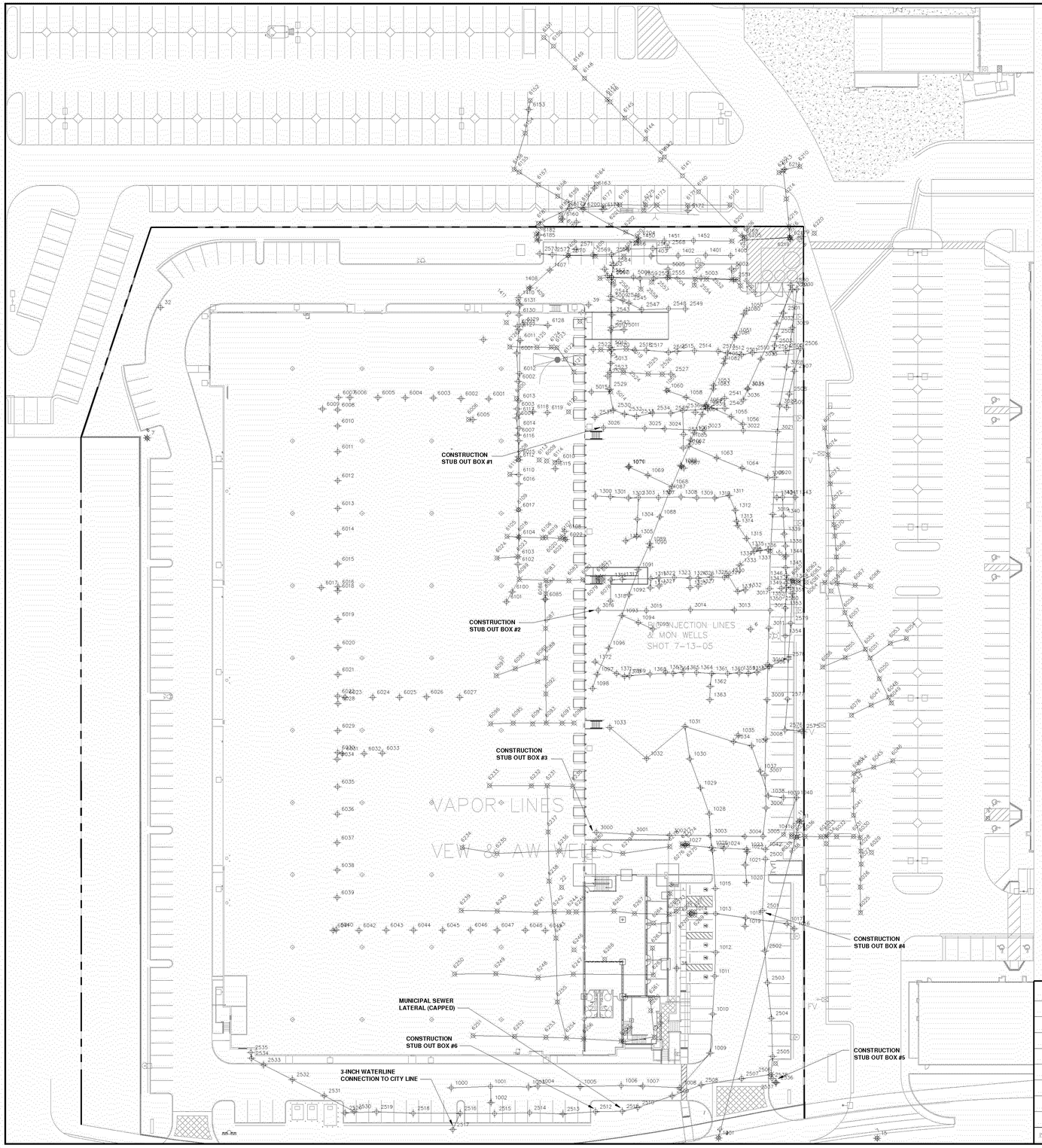
BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

CIVIL DETAILS-SUPPLEMENTARY PIPING, TRENCHES, AND VAULTS

Date:	Scale:	File No.
MAY 2006	NOT TO SCALE	28882D11

Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	RMF
Sheet No.:	12 of 13
Drawing No.	C-10
Issue	8

(540)28882D11-SHEET C-10.DWG



COORDINATES OF SUBSURFACE FEATURES REQUIRING ACCESS FOR FUTURE SYSTEM EXPANSION

Survey Shot Number *	Feature	Elevation	X-Coordinate	Y-Coordinate
3026	CONSTRUCTION STUB-OUT BOX 1	51.78	6470249.300	1769978.995
3016	CONSTRUCTION STUB-OUT BOX 2	52.44	6470245.498	1769847.781
3000	CONSTRUCTION STUB-OUT BOX 3	52.95	6470244.025	1769688.044
2501	CONSTRUCTION STUB-OUT BOX 4	49.24	6470363.535	1769631.762
2538	CONSTRUCTION STUB-OUT BOX 5	51.15	6470370.386	1769511.019
2512	CONSTRUCTION STUB-OUT BOX 6	52.77	6470243.489	1769487.192
2511	MUNICIPAL SEWER LATERAL (CAPPED)	51.17	6470262.713	1769487.405
2517	3-INCH WATER LINE CONNECTION TO CITY	53.19	6470140.867	1769474.261

* FOR A COMPLETE LIST OF SURVEY SHOT NUMBERS, PLEASE SEE THE CONSTRUCTION COMPLETION REPORT BY HALEY & ALDRICH DATED MAY 2006.

NOTE:

1. SURVEY DATA PROVIDED BY TAIT ENVIRONMENTAL MANAGEMENT BETWEEN 1 JUNE 2005 AND 17 MARCH 2006.

2. SURVEY DATA HAS NOT BEEN VERIFIED BY HALEY & ALDRICH.

ISSUE	DATE	REVISIONS	BY
8	5/23/06	FINAL AS-BUILT	GKM
7	4/11/06	DRAFT AS-BUILT	GKM
6	7/26/05	FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	JHM
5	7/19/05	UPDATED FINAL WITH ADDTIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

PLOT OF SURVEY DATA ON SITE PLAN

Date: MAY 2006
Scale: AS SHOWN
File No. 28882D12

0 40 80
SCALE IN FEET

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: RMF
Sheet No.: 13 of 13
Drawing No. C-11
Issue 8

(540)28882D12SHEET C-11.DWG