

ATTACHMENT 7
OF
FORM C-137

FACILITY DESIGN AND CONSTRUCTION

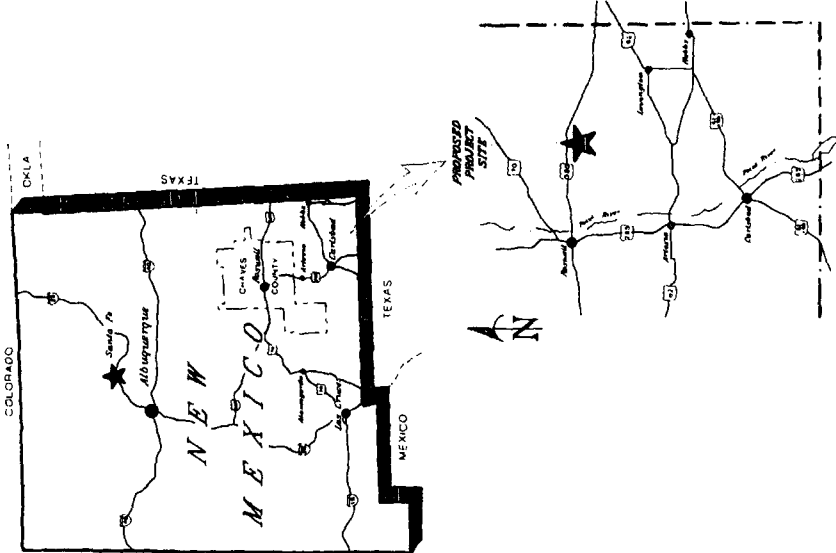
BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. A
CASE 13480

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. _____

GANDY MARLEY, INC. COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
CHAVES COUNTY, NEW MEXICO

SEPTEMBER 2005
DRAFT - REV A

NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY



LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
1	COVER SHEET
2	EXISTING CONDITIONS
3	ULTIMATE EXCAVATION PLAN AND CROSS-SECTIONS (2 SHEETS)
4	WASTE FILLING PLAN AND CROSS-SECTIONS - PHASE 1 (2 SHEETS)
5	WASTE FILLING PLAN AND CROSS-SECTIONS- PHASE 2 (2 SHEETS)
6	ULTIMATE CLOSURE PLAN AND CROSS-SECTIONS (2 SHEETS)
7	TYPICAL DETAILS

Prepared For:



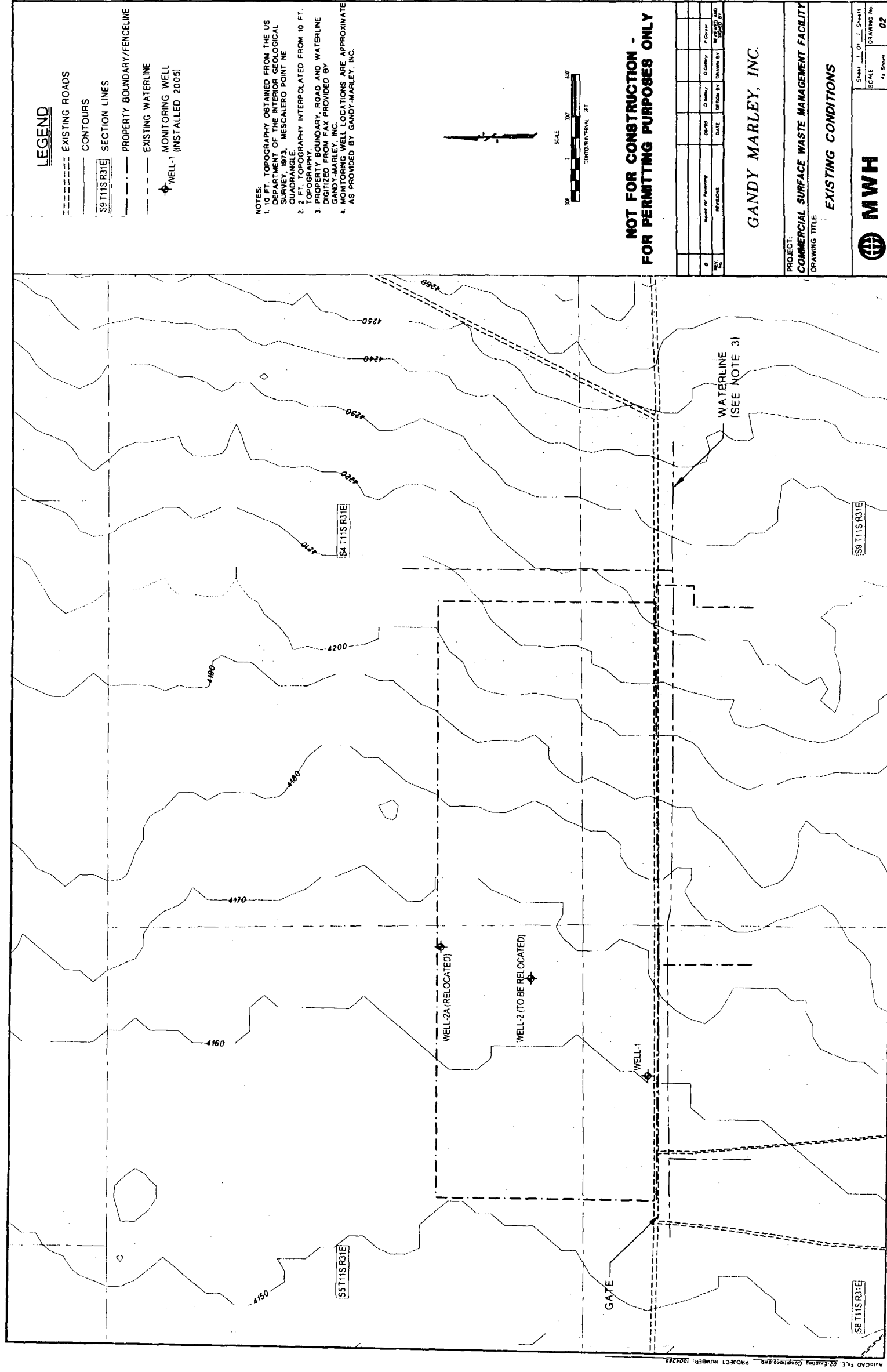
Gandy Marley, Inc.
P.O. Box 827
1109 East Broadway
Tatum, New Mexico 88267

Prepared By:



MWH

1475 Pine Grove Road
P.O. Box 174018
Steamboat Springs, Colorado 80477



**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

REV	DATE	BY	REVISIONS	DESIGN BY	DRAWN BY	APPROVED AND SIGNED BY
0			ISSUED FOR PURCHASING	08/05		

GANDY MARLEY, INC.

PROJECT: **COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY**

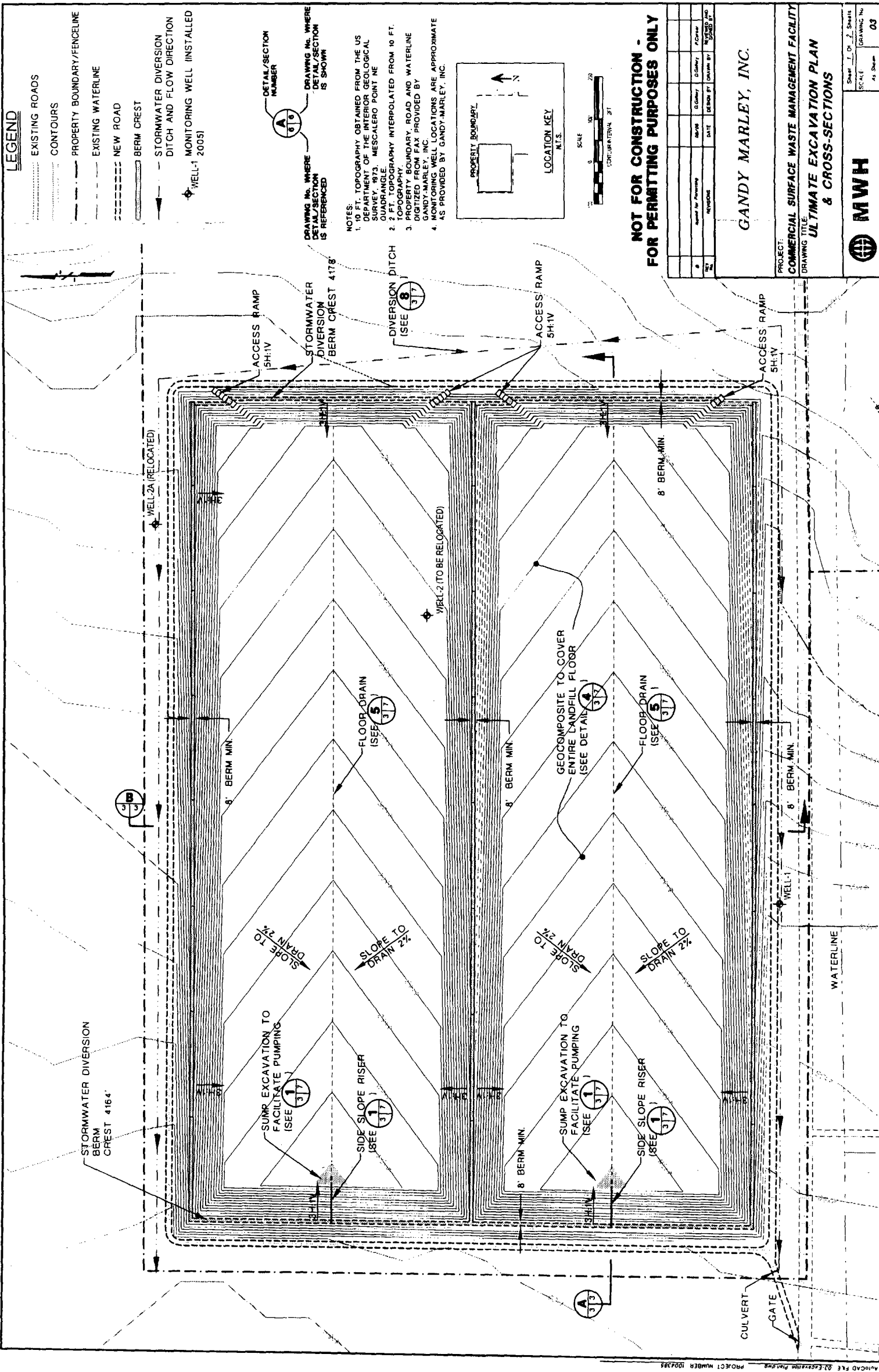
DRAWING TITLE:

EXISTING CONDITIONS



MWH

Sheet 1 of 1 Sheets	DRAWING NO.
SCALE	02
As Shown	



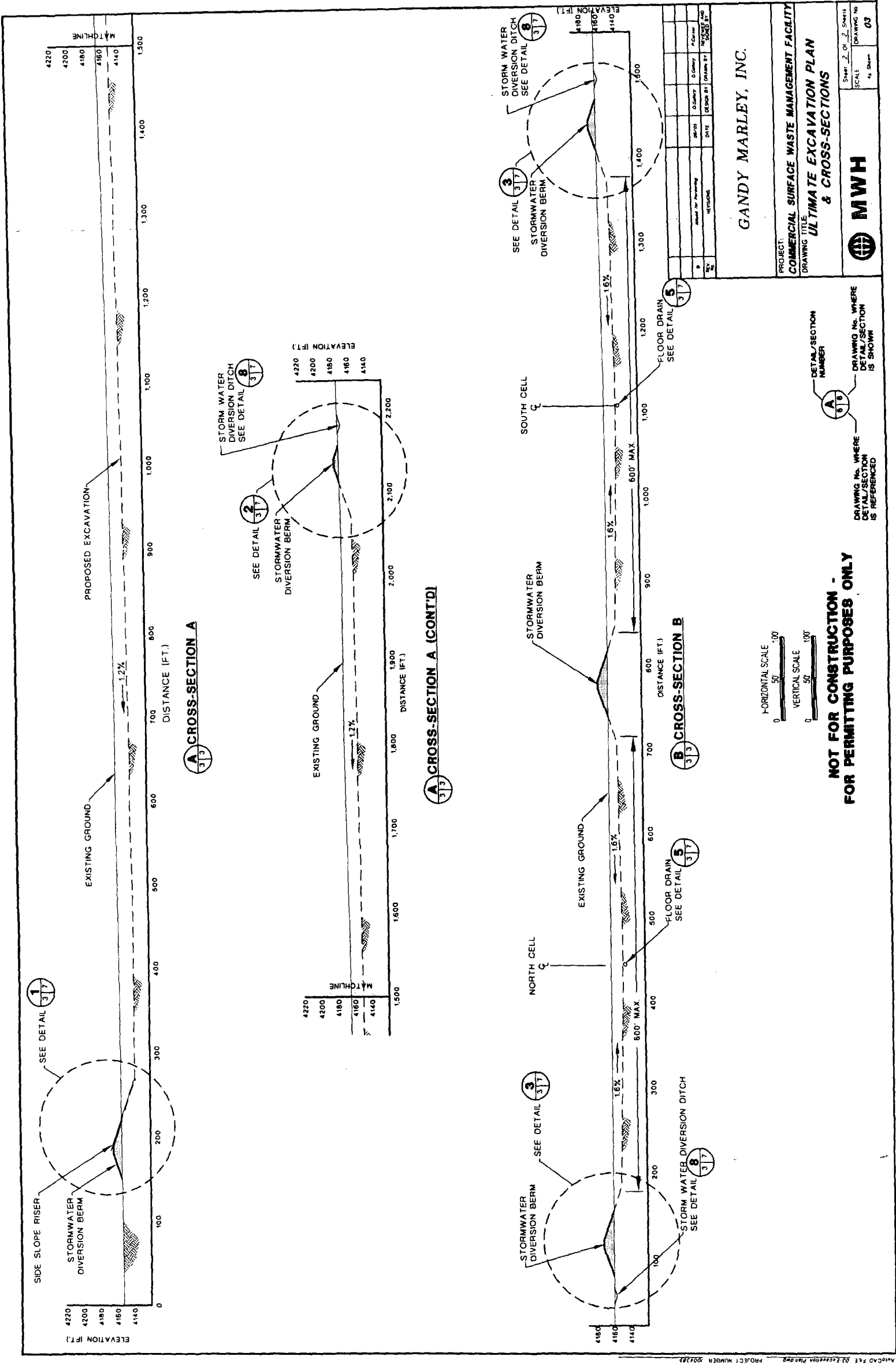
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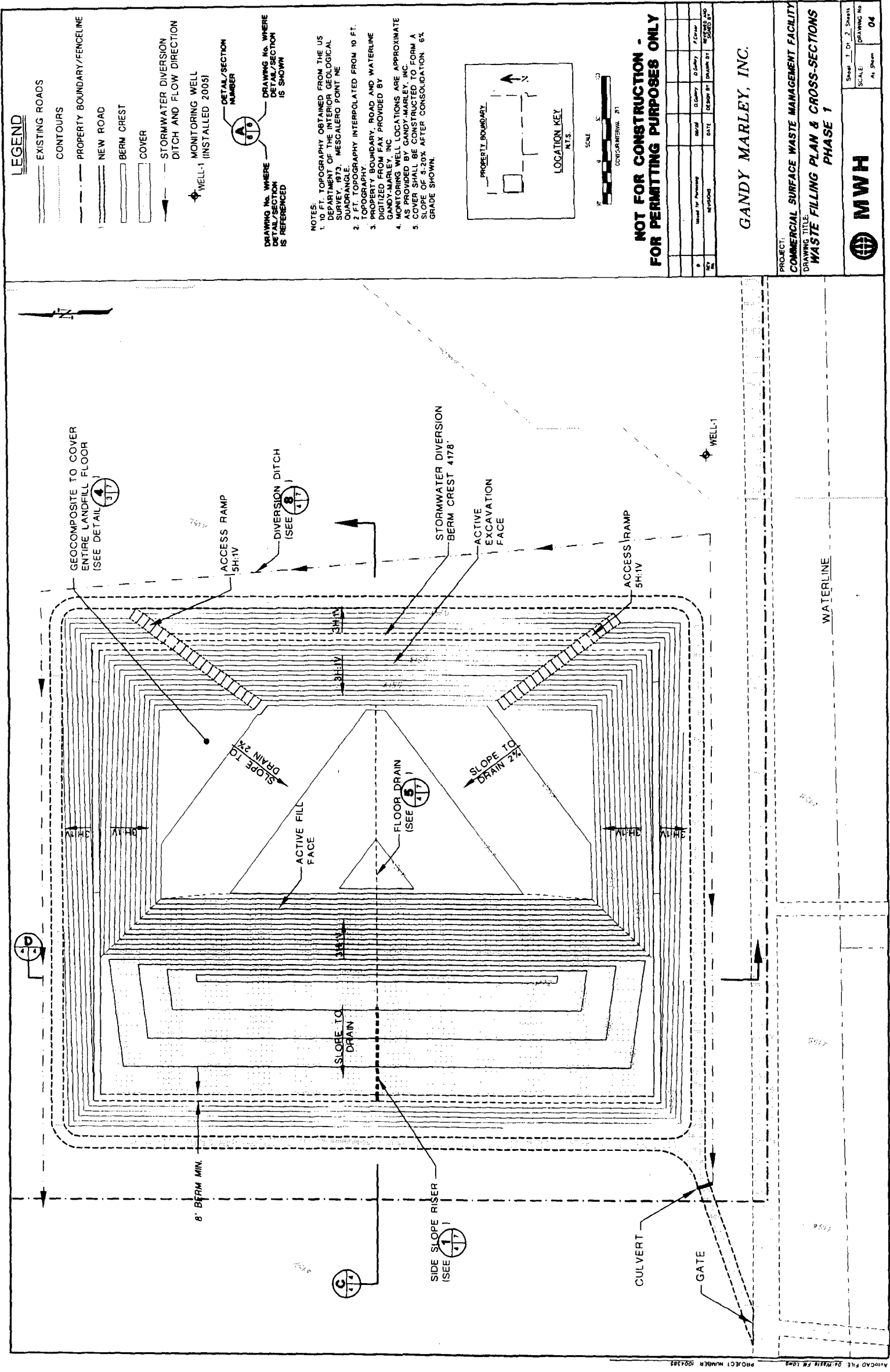
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GANDY MARLEY, INC.

PROJECT: COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE: **ULTIMATE EXCAVATION PLAN
& CROSS-SECTIONS**


MWH
 Sheet 1 of 2 Sheets
 SCALE: As Shown
 DRAWING No. 03

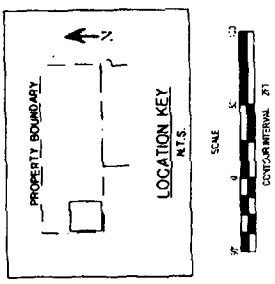




- LEGEND**
- EXISTING ROADS
 - CONTOURS
 - PROPERTY BOUNDARY/FENCELINE
 - NEW ROAD
 - BERM CREST
 - COVER
 - STORMWATER DIVERSION DITCH AND FLOW DIRECTION
 - MONITORING WELL
 - WELL-1 (INSTALLED 2003)
 - DETAIL/SECTION NUMBER
 - DRAWING NO. WHERE DETAIL/SECTION IS REFERENCED

NOTES:

- 10 FT. TOPOGRAPHY OBTAINED FROM THE US DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, 1973, MESGALERO POINT NE QUADRANGLE.
- 2 FT. TOPOGRAPHY INTERPOLATED FROM 10 FT. TOPOGRAPHY.
- PROPERTY BOUNDARY, ROAD AND WATERLINE DIGITIZED FROM PAX PROVIDED BY GANDY-MARLEY, INC.
- MONITORING WELL LOCATIONS ARE APPROXIMATE AS PROVIDED BY GANDY-MARLEY, INC.
- COVER SHALL BE CONSTRUCTED TO FORM A SLOPE OF 3-20% AFTER CONSOLIDATION. 6% GRADE SHOWN.



**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

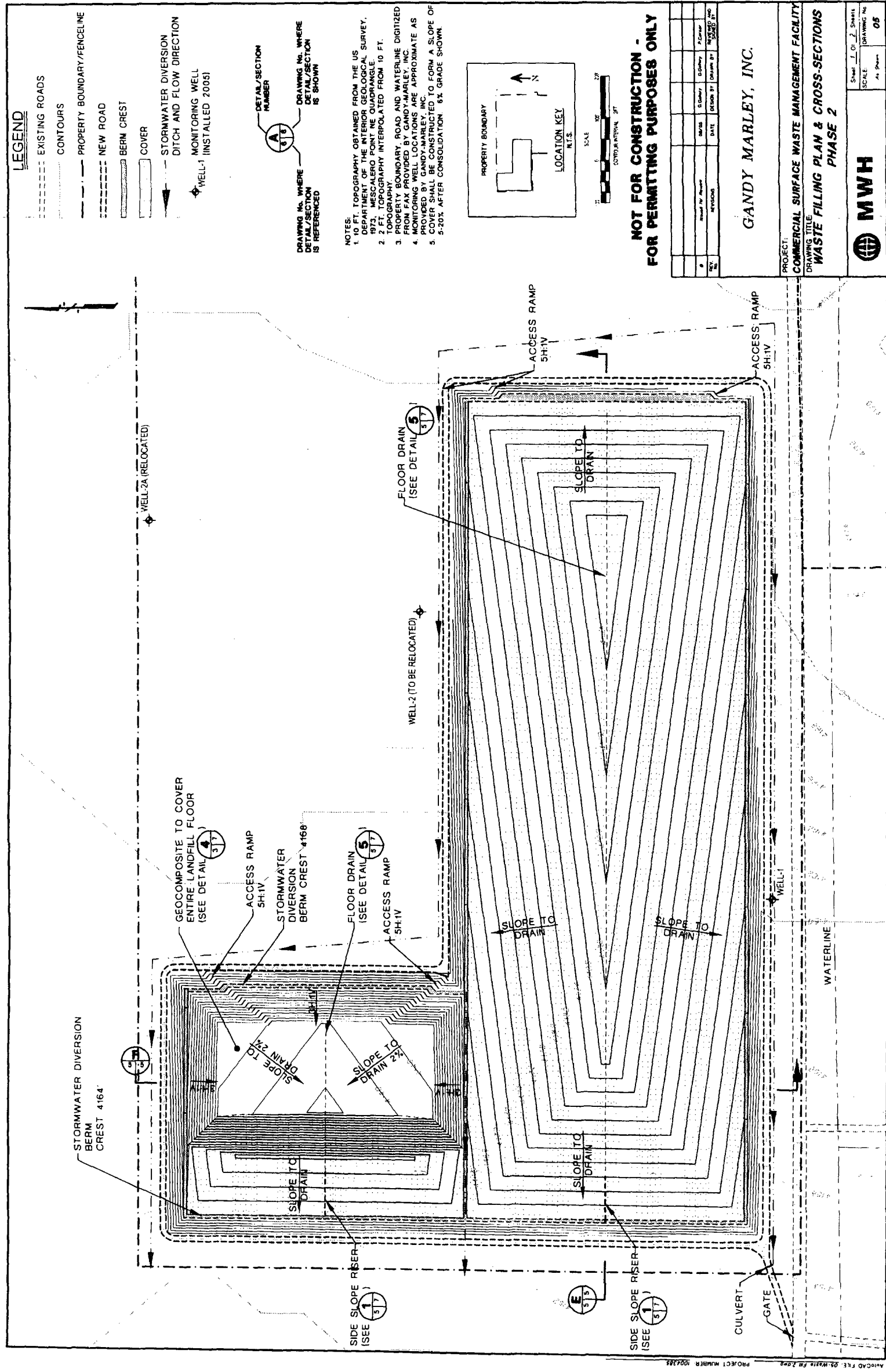
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REVIEWED BY	DATE	REVIEWED BY	DATE

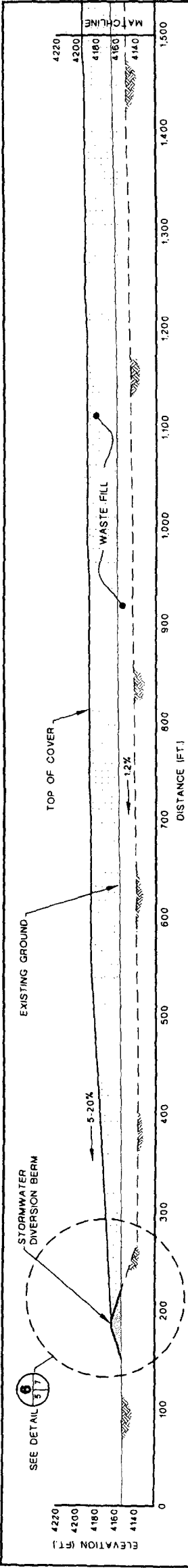
GANDY MARLEY, INC.

PROJECT: COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE: WASTE FILLING PLAN & CROSS-SECTIONS
PHASE 1

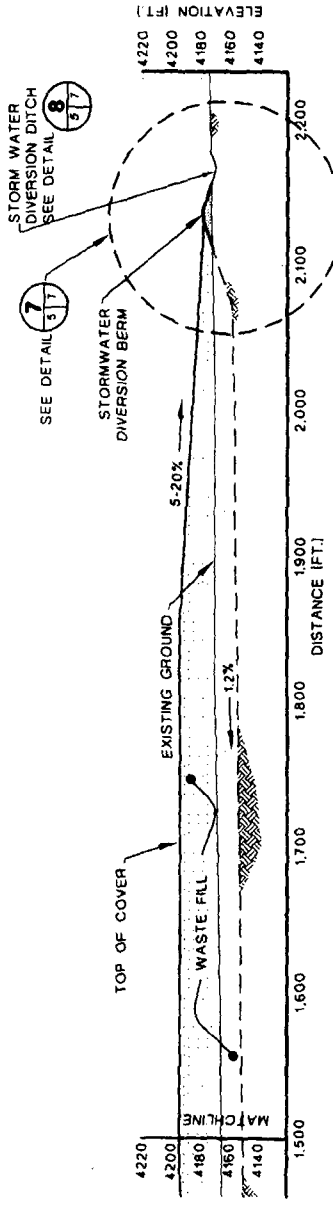
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Sheet 1 of 2 Sheets
SCALE: As Shown
Drawing No. 04

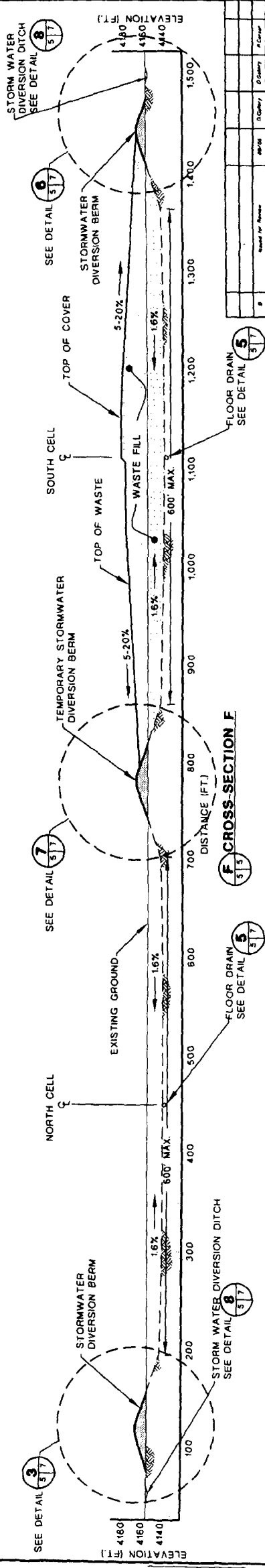




E CROSS-SECTION E

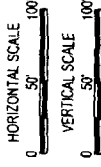


E CROSS-SECTION E (CONT'D)



ARCHAD FILE 02:WASTE FM PHASE 2.DWG PROJECT NUMBER 1004282

NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE
OF 5:20% AFTER CONSOLIDATION. 6% GRADE
SHOWN.



**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

DATE	DESIGN BY	CHECKED BY	IN CHARGE
10/10/00	J. J. J.	J. J. J.	J. J. J.

GANDY MARLEY, INC.

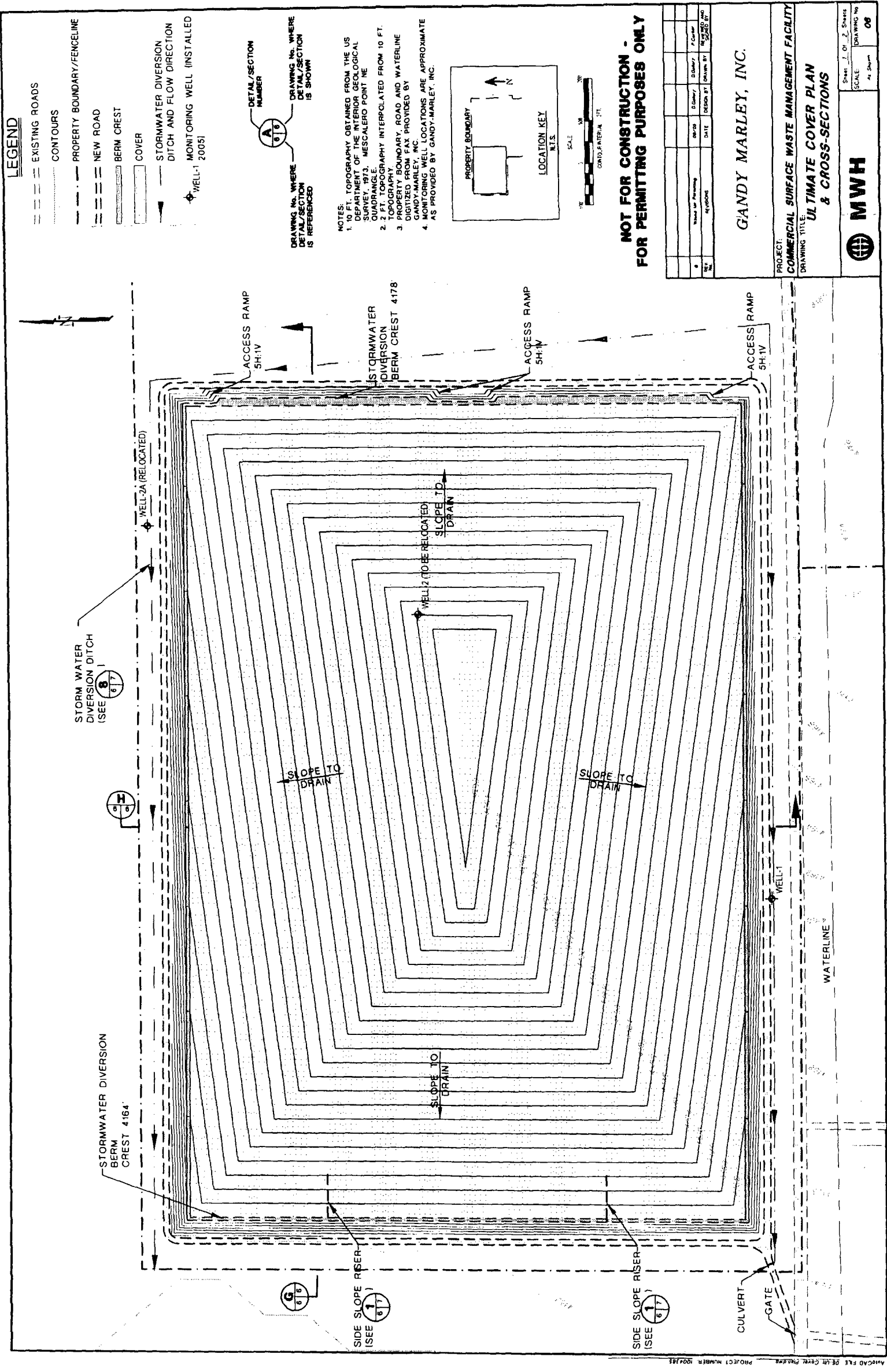
PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE:
WASTE FILLING PLAN & CROSS-SECTIONS
PHASE 2

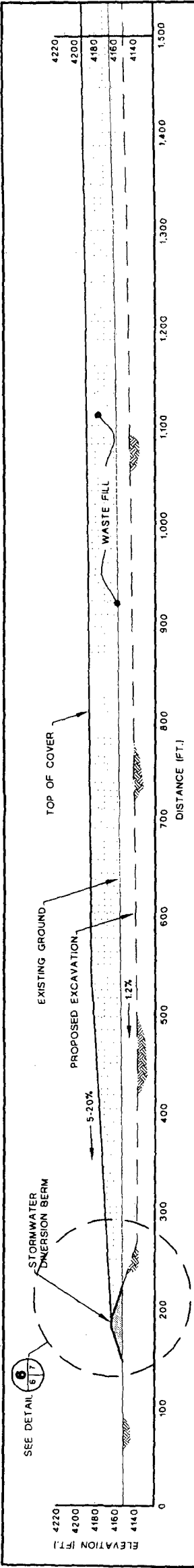
Sheet 2 of 2 Sheets	SCALE	DRAWING No.
AS SHOWN		05



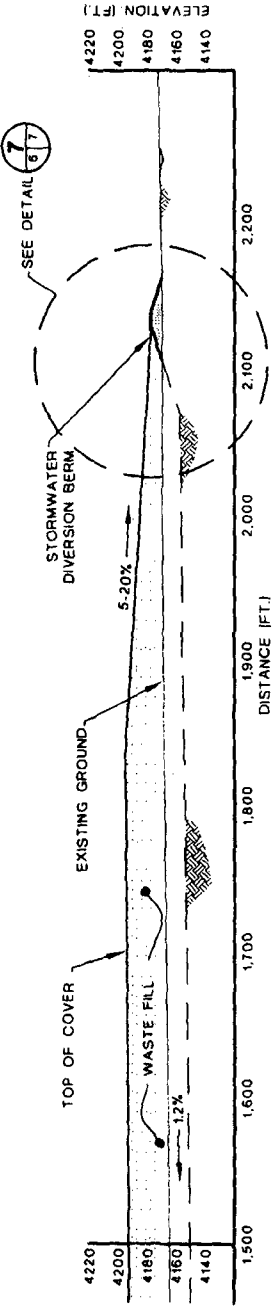
DETAIL/SECTION
NUMBER

DRAWING NO. WHERE
DETAIL/SECTION
IS REFERENCED

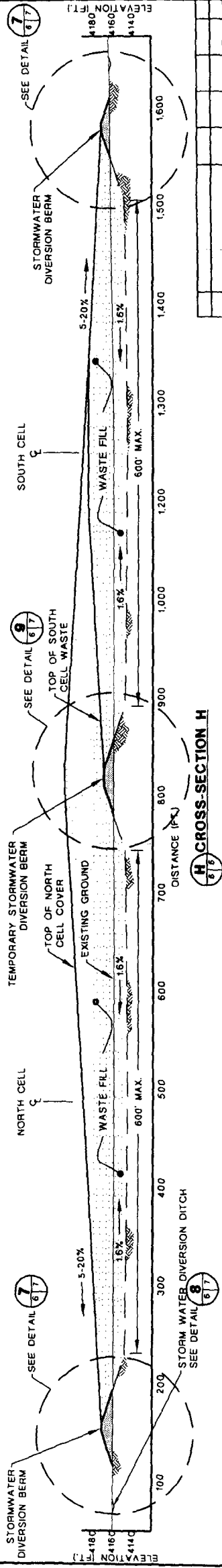




G/6 CROSS-SECTION G

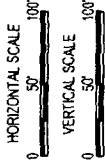


G/6 CROSS-SECTION G (CONT'D)



H/6 CROSS-SECTION H

NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE
OF 5.20% AFTER CONSOLIDATION. 6% GRADE
SHOWN.

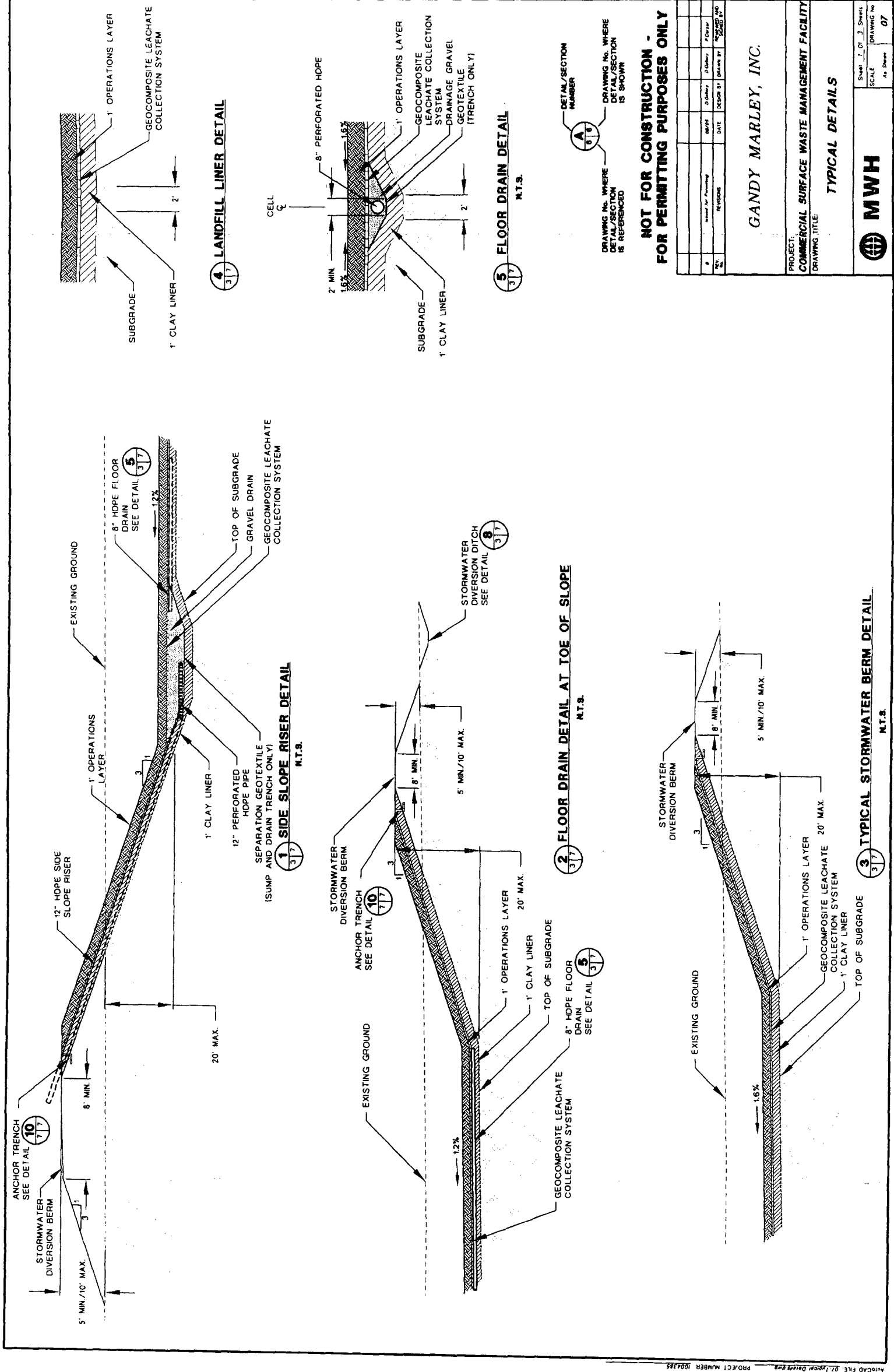


**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

PROJECT:		GANDY MARLEY, INC.	
DRAWING TITLE:		ULTIMATE COVER PLAN CROSS-SECTIONS	
DATE	DESIGN BY	DRAWN BY	CHECKED BY
10/10/00	W. MARLEY	W. MARLEY	W. MARLEY
SHEET NO.		SHEET 2 OF 2	
SCALE		AS SHOWN	
DRAWING NO.		00	



MWH



DRAWING NO. WHERE DETAIL/SECTION IS REFERENCED

DETAIL/SECTION NUMBER

NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY

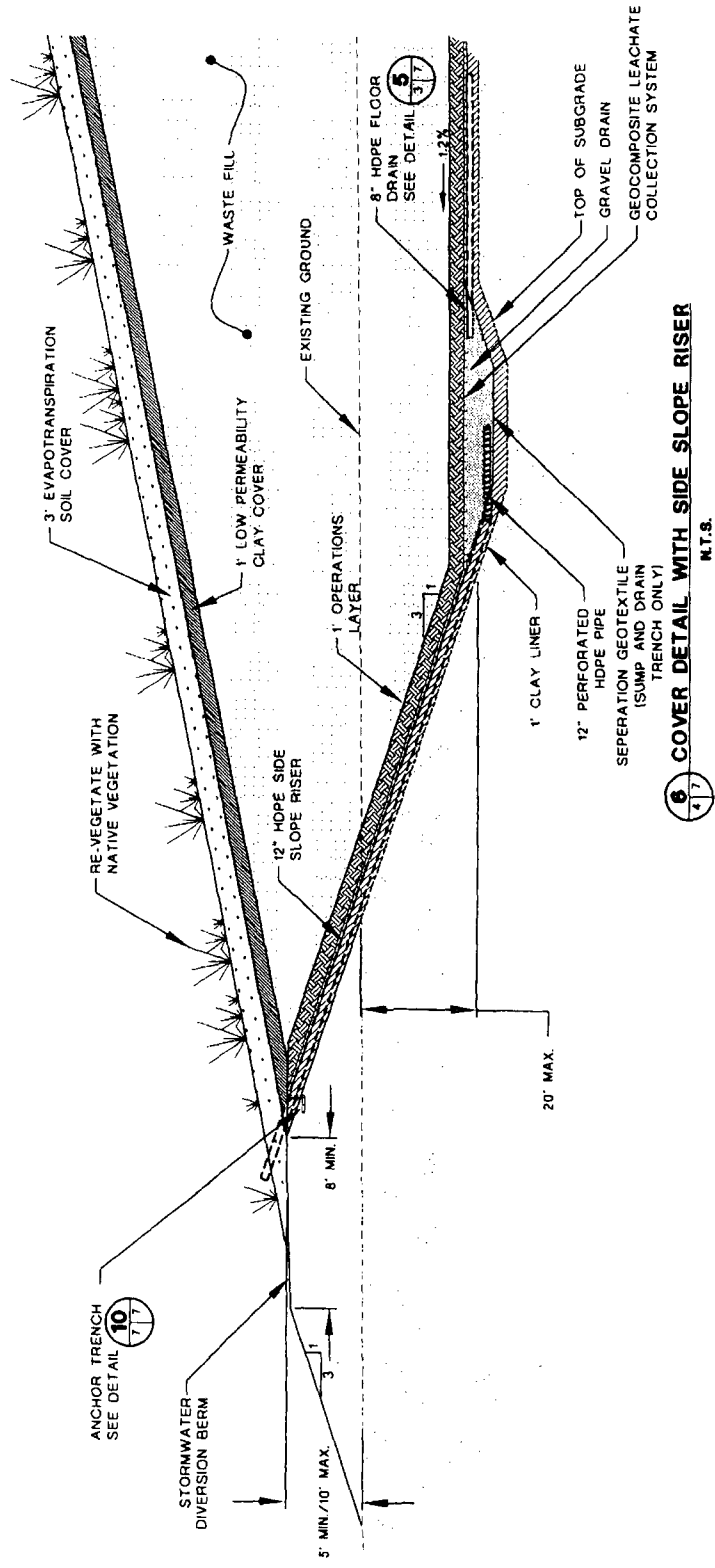
DESIGNED BY	DATE	DESIGNED BY	DATE
CHECKED BY	DATE	CHECKED BY	DATE
APPROVED BY	DATE	APPROVED BY	DATE

GANDY MARLEY, INC.

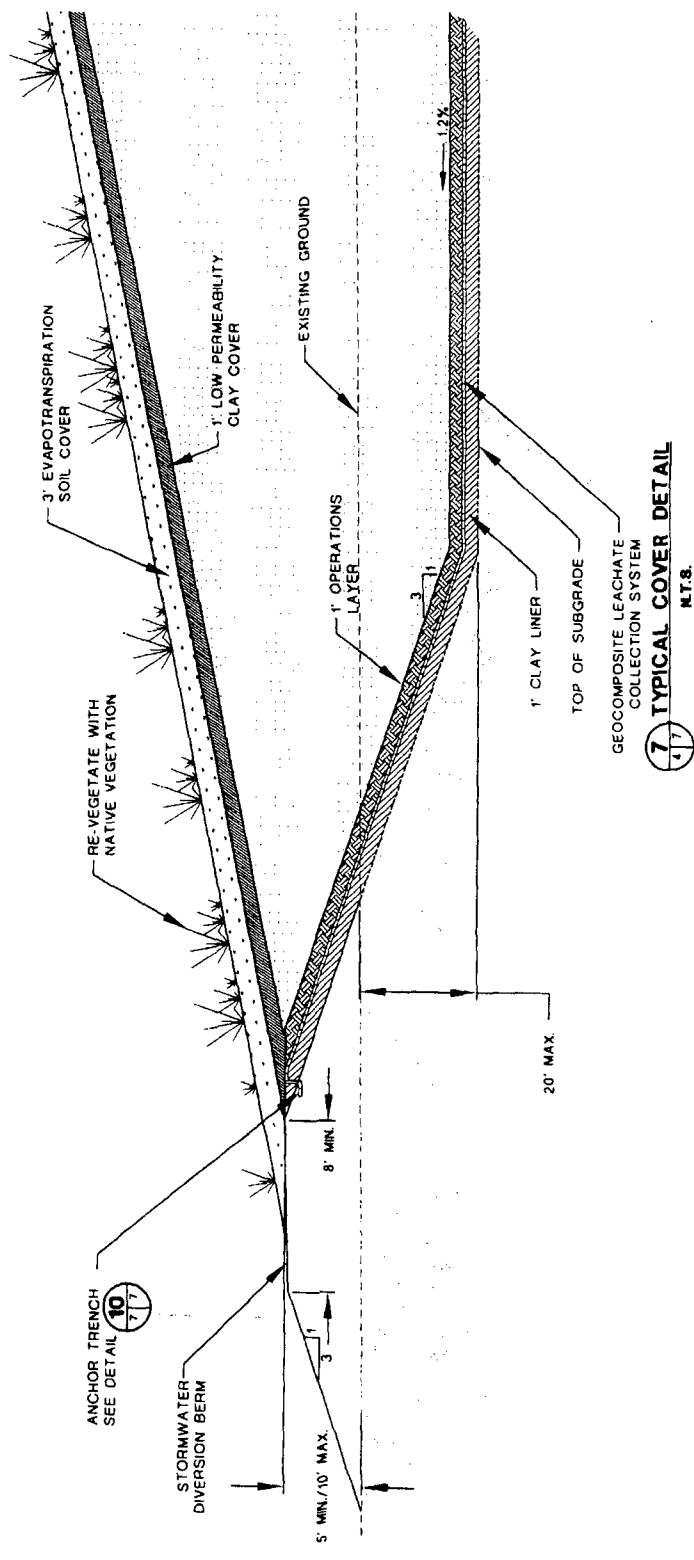
PROJECT: COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE: TYPICAL DETAILS

MWH

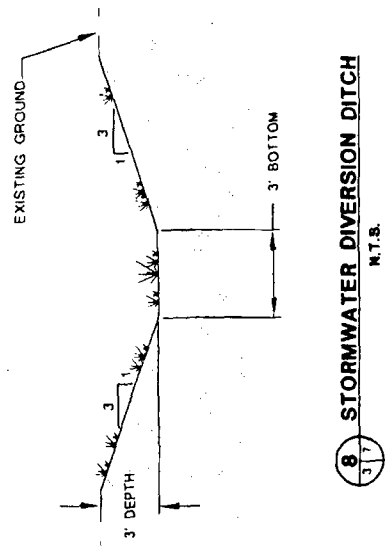
Sheet 1 of 3 Sheets
SCALE: DRAWING NO. 07



6 COVER DETAIL WITH SIDE SLOPE RISER
N.T.S.



7 TYPICAL COVER DETAIL
N.T.S.



8 STORMWATER DIVERSION DITCH
N.T.S.

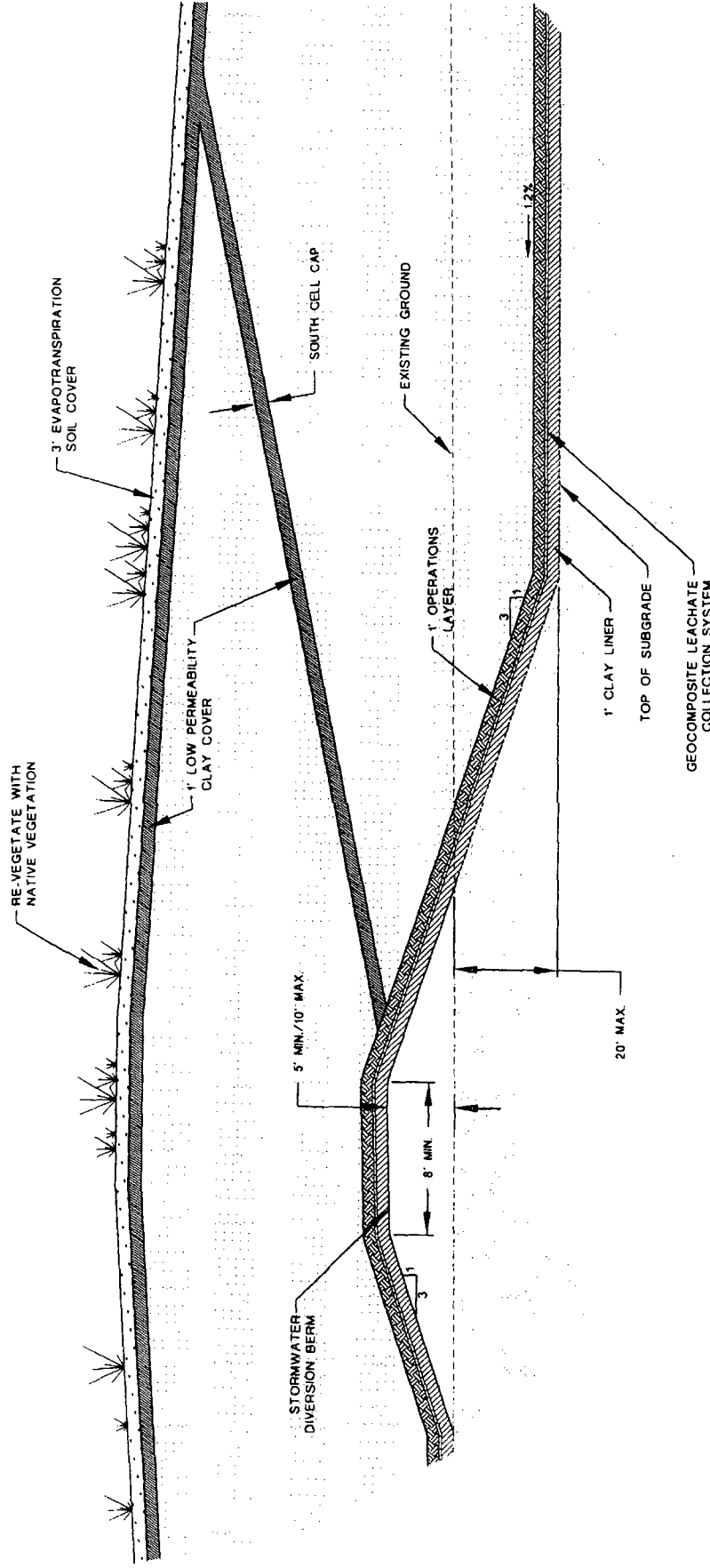
NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE OF
5-20% AFTER CONSOLIDATION.

DRAWING NO. WHERE
DETAIL/SECTION
IS REFERENCED

DRAWING NO. WHERE
DETAIL/SECTION
IS SHOWN

**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

PROJECT	COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE	TYPICAL DETAILS
GANDY MARLEY, INC.	
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
SCALE	AS SHOWN
SHEET 2 OF 3	DRAWING NO. 07
MWH	



NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE OF
5-10% AFTER CONSOLIDATION.

9 OVERLAPPING COVER DETAIL
N.T.S.

DRAWING NO. WHERE
DETAIL/SECTION
IS REFERENCED

DETAIL/SECTION
NUMBER

DRAWING NO. WHERE
DETAIL/SECTION
IS SHOWN

NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY

DESIGNED BY	DATE	DESIGNED BY	DATE	DESIGNED BY	DATE
REVISED AND CHECKED BY	DATE	REVISED AND CHECKED BY	DATE	REVISED AND CHECKED BY	DATE

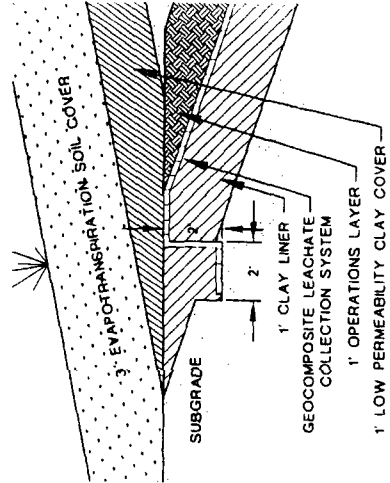
GANDY MARLEY, INC.

PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY

DRAWING TITLE:
TYPICAL DETAILS

MWH

Sheet 3 of 3
SCALE: As Shown
DRAWING NO. 07



10 ANCHOR TRENCH DETAIL
N.T.S.

CLAY LINER

MATERIALS

- A. Clay liner material shall be obtained from borrow areas or stockpiles identified by the Owner.
- B. Clay liner material for landfill or surface impoundment construction shall:
 - 1. Be classified according to the Unified Soil Classification System (USCS) as CL or CH (ASTM D 2487) and exhibit a minimum liquid limit of 30 and a minimum plasticity index of 11.
 - 2. Have a percentage of gravel (i.e., dry weight retained on a U.S. No. 4 sieve) of less than 15 percent.
 - 3. Have particles no larger than 2 inches (in largest dimension) after processing but prior to placement and no larger than 1 inch (in largest dimension) after placement and compaction.
 - 4. Have a hydraulic conductivity of not more than 1×10^{-7} cm/sec when compacted in accordance with these General Specifications and tested in the laboratory in accordance with ASTM D 5084 at an average effective confining pressure of 5 psi.

CLAY LINER COMPACTION

- A. Clay liner be compacted to a minimum of 90% of the materials maximum dry density as determined by ASTM D1557.
- B. Compaction of the clay liner for the landfill or surface impoundment shall be performed using a Caterpillar 825 compactor or equal.
- C. The daily work area shall extend a sufficient distance so as to maintain soil moisture conditions within an acceptable range to allow continuous operations. Desiccation and crusting of the lift surface shall be avoided as much as possible.
- D. The CQA Engineer will identify any areas of significant desiccation and crusting of a lift surface. The Contractor shall scarify the surface of such areas to a nominal depth of 1 to 2 inches or to the depth of desiccation identified by the CQA Engineer, and then water condition, disc or mix as necessary, and recompact the area.

PERFORATIONS

- A. Perforations in the clay liner resulting from construction activities shall be filled. Such perforations may include, but are not limited to, the following:

1. Nuclear density test probe locations;
2. Shelby tube sample locations;
3. Sand-cone or rubber-balloon test locations; and,
4. Survey stake locations.

LOW PERMEABILITY CLAY COVER

MATERIALS

- A. Low permeability clay cover material shall be obtained from borrow areas or stockpiles identified by the Owner.
- B. Low permeability clay cover material for landfill or surface impoundment construction shall:
 - 1. Be classified according to the Unified Soil Classification System (USCS) as CL or CH (ASTM D 2487) and exhibit a minimum liquid limit of 30 and a minimum plasticity index of 11.
 - 2. Have a percentage of gravel (i.e., dry weight retained on a U.S. No. 4 sieve) of less than 15 percent.
 - 3. Have particles no larger than 2 inches (in largest dimension) after processing but prior to placement and no larger than 1 inch (in largest dimension) after placement and compaction.

LOW PERMEABILITY CLAY COVER COMPACTION

- A. Low permeability clay cover will be machine compacted.
- C. Compaction of the clay liner for the landfill or surface impoundment shall be performed using a Caterpillar 825 compactor or equal.
- C. The daily work area shall extend a sufficient distance so as to maintain soil moisture conditions within an acceptable range to allow continuous operations. Desiccation and crusting of the lift surface shall be avoided as much as possible.
- D. The CQA Engineer will identify any areas of significant desiccation and crusting of a lift surface. The Contractor shall scarify the surface of such areas to a nominal depth of 1 to 2 inches or to the depth of desiccation identified by the CQA Engineer, and then water condition, disc or mix as necessary, and recompact the area.

PERFORATIONS

- A. Perforations in the soil resulting from construction activities shall be filled. Such perforations may include, but are not limited to, the following:
 - 1. Survey stake locations.

OPERATIONS LAYER

MATERIALS

- A. Soil material shall be obtained from the landfill excavation or off-site borrow sources.
- B. Soil layer material shall classify as CL, ML, SC, GC, SM, or GM according to the Unified Soil Classification System (ASTM D 2487) and shall have a maximum particle size not exceeding 6 inches.

PLACEMENT AND COMPACTION

- A. Soil material shall be placed above the waste material at the locations and to the thicknesses shown on the Construction Drawings.
- B. The Contractor shall not place the soil layer until the CQA Engineer confirms that the constructed grades and elevations of the waste meet the requirements of the Construction Drawings, all field testing is complete, and approved in accordance with the requirements of the CQA Plan.
- C. The final in-place thickness of the soil layer shall be not less than 12 inches.
- D. The soil material shall be spread in 1 lift.

EVAPOTRANSPIRATION COVER

MATERIALS

- A. Evapotranspiration cover material shall be obtained from the landfill or from on-site or off-site borrow sources.
- B. Evapotranspiration cover material shall classify as CL, ML, SC, GC, SM, or GM according to the Unified Soil Classification System (ASTM D 2487) and shall have a maximum particle size not exceeding 3 inches.

PLACEMENT AND COMPACTION

- A. Evapotranspiration cover material shall be placed above the cover system at the locations and to the thicknesses shown on the Construction Drawings.
- B. The final in-place thickness of the vegetative cover layer shall be not less than 24 inches.
- C. Evapotranspiration cover material shall be compacted by two passes of tracked equipment such as a Caterpillar D6H-LGP or other equipment approved by the Owner.

GEOCOMPOSITE

GEOCOMPOSITE PROPERTIES

REQUIRED GEOCOMPOSITE PROPERTIES			
Properties	Units	Specified Values ⁽⁴⁾	Test Method
Geonet Component:			
Polymer composition	%	95 polyethylene by weight	
Polymer specific gravity		0.92	ASTM D 1505
Polymer melt index	g/10 min.	0.1 - 0.5	ASTM D 1238
Carbon black content	%	2 - 3	ASTM D 1603
Nominal thickness	mm	5	ASTM D 374C or D1777
Geotextile Component (both sides of geonet):			
Polymer composition	%	95 polyester polypropylene, or polyethylene by weight	
Mass per unit area	oz/yd ²	7.1	ASTM D 3776
Apparent opening size	mm	$O_{95} < 0.210$ mm	ASTM D 4751
Permittivity	sec ⁻¹	1.47	ASTM D 4491
Grab strength	lb	210	ASTM D 4632 ⁽¹⁾
Tear strength	lb	75	ASTM D 4533 ⁽²⁾
Puncture strength	lb	95	ASTM D 4833 ⁽³⁾
Geocomposite:			
Transmissivity	m ² /s	2×10^{-4}	ASTM D 4716 ⁽⁵⁾
Peel Strength	lb/in.	2	ASTM D 413
NOTES:			
(1)	Minimum of values measured in machine and cross machine directions with 1 inch clamp on constant rate of extension (CRE) machine.		
(2)	Minimum value measured in machine and cross machine direction.		
(3)	Tension testing machine with a 1.75-inch diameter ring clamp, the steel ball being replaced with a 0.31-inch diameter solid steel cylinder with flat tip centered within the ring clamp.		
(4)	Values represent minimum average roll values (i.e., any roll in a lot should meet or exceed the values in this table). Where ranges of values are specified, the average roll value must be within the specified range. The apparent opening size specified is a maximum average roll value.		
(5)	The design transmissivity is the hydraulic transmissivity of the geocomposite measured using water at 68°F ± 3°F with a hydraulic gradient of 0.1, under a compressive stress of not less than 15,000 psf. For the test, the geocomposite shall be sandwiched between a layer of protective soil material representative of the material that will be used in the landfill and a 60-mil thick textured HDPE geomembrane. The minimum test duration shall be 24 hours and the report of results shall include measurements at intervals over the entire test duration.		

FOR PERMITTING PURPOSES ONLY – NOT FOR CONSTRUCTION

HANDLING AND PLACEMENT

- A. Geocomposite shall be installed at all locations shown on the Construction Drawings and to Manufacture specifications.

B.

PLACEMENT OF OVERLYING MATERIALS

- A. Overlying materials as required by the Construction Drawings, shall be placed as soon as possible after placement and approval of the geocomposite. Placement of each overlying material shall be in accordance with the appropriate sections of these General Specifications.
- B. The Contractor shall place overlying soil materials in such a manner as to ensure that:
1. The geocomposite and underlying geosynthetic materials are not damaged;
 2. Minimal slippage occurs between the geocomposite and underlying layers; and,
 3. Excessive stresses are not produced in the geocomposite.
- C. Unless otherwise specified by the Owner, the equipment operating on soil material overlying a geocomposite shall comply with the following:

<i>Maximum Allowable Equipment Ground Pressure (psi)</i>	<i>Thickness of Soil Above Geocomposite (inches)</i>
<5	12
<10	18
<20	24
>20	36

The maximum allowable equipment ground pressure shall be 65 psi. The acceptability of equipment operating at ground pressures greater than 65 psi will be evaluated by the Owner at the Contractor's expense.

The requirements do not apply to equipment used to construct the sump secondary or primary clay liners; however, the Owner can restrict the use of equipment that, in the Owner's opinion, may be potentially damaging to the geocomposite.

- D. The CQA Engineer will provide monitoring of the spreading of soils over the geocomposite in accordance with the CQA Plan.

VEGETATION AND SEEDING

MATERIALS

- A. Seed mixture for planting shall be as specified by the New Mexico SCS.

SITE PREPARATION

- A. Remove all weeds from areas to be planted. Roughen seed bed to a depth of 2 to 4 inches by scarifying, disking, harrowing, or equivalent methods.

PLANTING

- A. Plant seed using equipment and procedures appropriate for seed type at recommended by the seed supplier.

DRAINAGE GRAVEL

MATERIALS

- A. Drainage gravel for the work shall consist of clean, hard, durable, non-carbonate, rounded, sub-rounded to sub-angular particles that are free of metals, roots, trees, stumps, concrete, construction debris, other organic matter, and deleterious materials and coatings.
- B. The gravel shall be screened and washed to have a gradation (when tested in accordance with ASTM D 422) after placement equivalent to the following

<u>Sieve</u>	<u>Percent Passing</u>
1"	100%
3/4"	85-100%
3/8"	12-30%
4"	1-4%
40"	0-1%

- C. Drainage gravel shall have a hydraulic conductivity of at least 1 cm/sec when hand compacted in the laboratory in 3 lifts and tested in accordance with ASTM D 2434.
- D. Drainage gravel shall have less than 30% loss when tested in accordance with ASTM C 131 for abrasion and less than 12% loss when tested in accordance with ASTM C 88.
- E. Drainage gravel shall have less than 5 percent loss of weight, when tested for calcium carbonate content in accordance with ASTM D 4373. This requirement may be waived by the Owner if it can be otherwise demonstrated that the material contains no significant carbonate content.

PLACEMENT AND COMPACTION

- A. Gravel shall be placed at the locations and to the thicknesses shown on the Construction Drawings.
- B. Gravel shall not be placed directly on the geomembrane liner. Gravel may be placed on top of a geotextile cushion layer, geonet, geocomposite drainage layer, or geomembrane rub sheet, as shown on the Construction Drawings. Gravel may be placed using a backhoe, front-end loader, belt conveyor, spreader box, or other method approved by the Owner, as long as the ground-pressure requirements of this Section are not exceeded. The maximum acceptable gravel drop height is 3 feet.
- C. Final spreading of the gravel may be performed using a low ground-pressure dozer (Caterpillar D6H-LGP or other similar equipment approved by the CQA Engineer), low-ground pressure front-end loader, or by hand. The tracked equipment shall operate only over previously-placed gravel or other soil. The Contractor shall not operate equipment directly on geosynthetics.

- D. Unless otherwise specified by the Owner, the equipment used to spread gravel shall not exert ground pressures exceeding the following:

<i>Allowable Equipment Ground Pressure (psi)</i>	<i>Thickness of Gravel Above Geosynthetic (inches)</i>
<5	12
<10	18
<20	24
>20	36

The maximum allowable equipment ground pressure shall be 65 psi. The acceptability of equipment operating at ground pressures greater than 65 psi will be evaluated by the Owner at the Contractor's expense.

- E. The Contractor shall operate equipment in a manner that is protective of polyethylene pipes and underlying geosynthetics. If it is suspected that damage to polyethylene pipes or underlying geosynthetics may have occurred, the Owner will instruct the Contractor to remove the overlying material to expose the potentially-damaged materials. The Contractor shall repair, at his own expense, any observed damage, in accordance with the requirements of these General Specifications.
- F. Within 1 foot of the toe of a slope, gravel shall be spread by hand. Extreme care shall be taken when placing gravel to protect the installed components of the liner system.
- G. Geotextile filter or cushion layers shall be placed as shown on the Construction Drawings. Geotextile filter and cushion layer placement shall be in accordance with Section 02714 of these General Specifications.

[END OF SECTION]

GEOMEMBRANE LINERS

RESIN

- A. Reclaimed polymer shall not be added to the resin; however, the use of polymer recycled during the manufacturing process will be permitted if the recycled polymer does not exceed 2 percent by weight of the total polymer weight. The product shall be manufactured specifically for use in geomembranes, using new, first-quality polyethylene resin.
- B. The resin shall comply with the following properties for high density polyethylene (HDPE):
 - 1. Specific Gravity: 0.94 to 0.96 (ASTM D 792 Method A or ASTM D 1505)
 - 2. Melt Index: 0.1 - 0.3 g/10 min. (ASTM D 1238 Condition E 190/C, 2.16 kg)
 - 3. Water absorption: 0.1% max (ASTM D 570)

GEOMEMBRANE PROPERTIES

- A. Smooth or textured HDPE geomembrane shall be used based on the following schedule:
- B. The Contractor shall require that the geomembranes Manufacturer furnish geomembrane with minimum average roll values, as defined by the Federal Highway Administration (FHWA), meeting or exceeding the criteria specified in Table 02775-1 and that meet the manufacturing quality control requirements of this section. The Contractor shall require the geomembrane Manufacturer to certify in writing as well as provide test results that demonstrate that the geomembrane delivered to the site complies with the properties listed in Table 02775-1.
- C. In addition to the property values listed in Table 02775-1, the geomembrane material shall:
 - 1. Contain a maximum of 1 percent by weight of additives, fillers, or extenders (not including carbon black).
 - 2. Not have striations, roughness (except in the case of textured HDPE geomembranes where a roughened surface is characteristic), pinholes, or bubbles on the surface.
 - 3. Be produced so as to be free of holes, blisters, undispersed raw materials, or any sign of contamination by foreign matter.
 - 4. Be manufactured in a single layer or coextruded.

INSTALLATION

- A. Install all geomembrane in accordance with manufacture' specifications.

TABLE 02775-1 REQUIRED GEOMEMBRANE		
Property	Test Method	60 mil HDPE ⁽¹⁾
Thickness	ASTM D1593 Para 8.1.3 (Smooth)	60 mil
	ASTM D751 (Textured)	57 mil (min)
Specific Gravity	ASTM D1505	0.940
Elongation @ Yield	ASTM D638	13%
Elongation @ Break	ASTM D638 Speed C	500% Smooth 100% Textured
Tensile Strength @ Yield	ASTM D638 Test Specimen Type IV	132 lb/in
Tensile Strength @ Break	ASTM D638	228 lb/in Smooth 132 lb/in Textured
Carbon Black Content	ASTM D1603	2% to 3%
Carbon Black Dispersion	ASTM D3015 and ASTM D2663	A-1, A-2, B-1
Environmental Stress Crack	ASTM D1693	1,500 hrs
Low Temperature Brittleness	ASTM D746 Procedure B	-103°F
Dimensional Stability	ASTM D1204	<1.5% (max)
Puncture Resistance	FTMS 101C	78 lb Smooth 78 lb Textured
Note: ⁽¹⁾ Values represent minimum average roll values (i.e., any roll in a lot should meet or exceed the values in this table). Where ranges of values are given, the average roll values must be within the specified range. The specified dimensional stability is a maximum average roll value.		

TABLE 02775-2 REQUIRED GEOMEMBRANE SEAM PROPERTIES⁽¹⁾					
ASTM D4437		60 Mil HDPE			
Shear	Fusion lbs/in	120	Smooth	113	Textured
	Extrusion lbs/in	120	Smooth	113	Textured
Peel	Fusion lbs/in	90	Smooth	90	Textured
	Extrusion lbs/in	80	Smooth	80	Textured
Note: (1) Specified properties are minimums.					

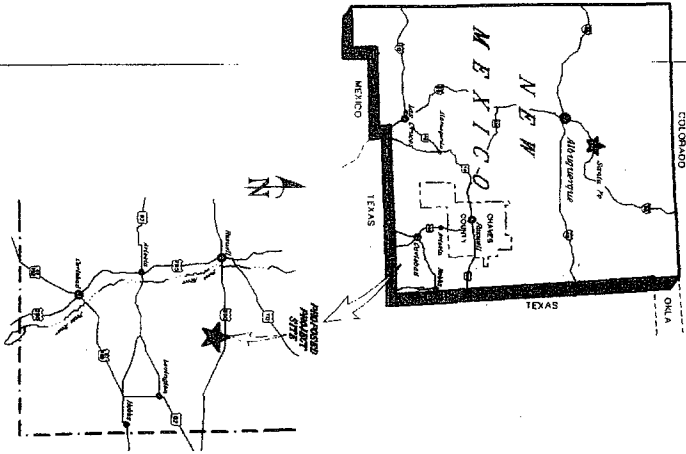
[END OF SECTION]

GANDY MARLEY, INC. COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY CHAVES COUNTY, NEW MEXICO

SEPTEMBER 2005

DRAFT - REV A

NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY



LIST OF DRAWINGS

DRAWING NO. DRAWING TITLE

- 1 COVER SHEET
- 2 EXISTING CONDITIONS
- 3 ULTIMATE EXCAVATION PLAN AND CROSS-SECTIONS (2 SHEETS)
- 4 WASTE FILLING PLAN AND CROSS-SECTIONS - PHASE 1 (2 SHEETS)
- 5 WASTE FILLING PLAN AND CROSS-SECTIONS - PHASE 2 (2 SHEETS)
- 6 ULTIMATE CLOSURE PLAN AND CROSS-SECTIONS (2 SHEETS)
- 7 TYPICAL DETAILS

Prepared For:



Gandy Marley, Inc.
P.O. Box 427
Tatum, New Mexico 88267

Prepared By:

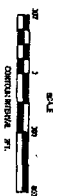


MWH

1475 Pine Grove Road
P.O. Box 774018
Steamboat Springs, Colorado 80477

WELL-1
(INSTALLED 2005)

NOTES:
1. 10 FT. TOPOGRAPHY OBTAINED FROM THE US DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, 1973, MESOCLINE POINT NE OULDAUNLE.
2. 2 FT. TOPOGRAPHY INTERPOLATED FROM 10 FT. TOPOGRAPHY.
3. PROPERTY BOUNDARY, ROAD AND WATERLINE DILUTED FROM FAA PROVIDED BY GANDY-MARLEY, INC.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE AS PROVIDED BY GANDY-MARLEY, INC.



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Q	Answer for Question	DATE	REDACTED	REDACTED	REDACTED	REDACTED
1	REDACTED					

GANDY MARLEY, INC.

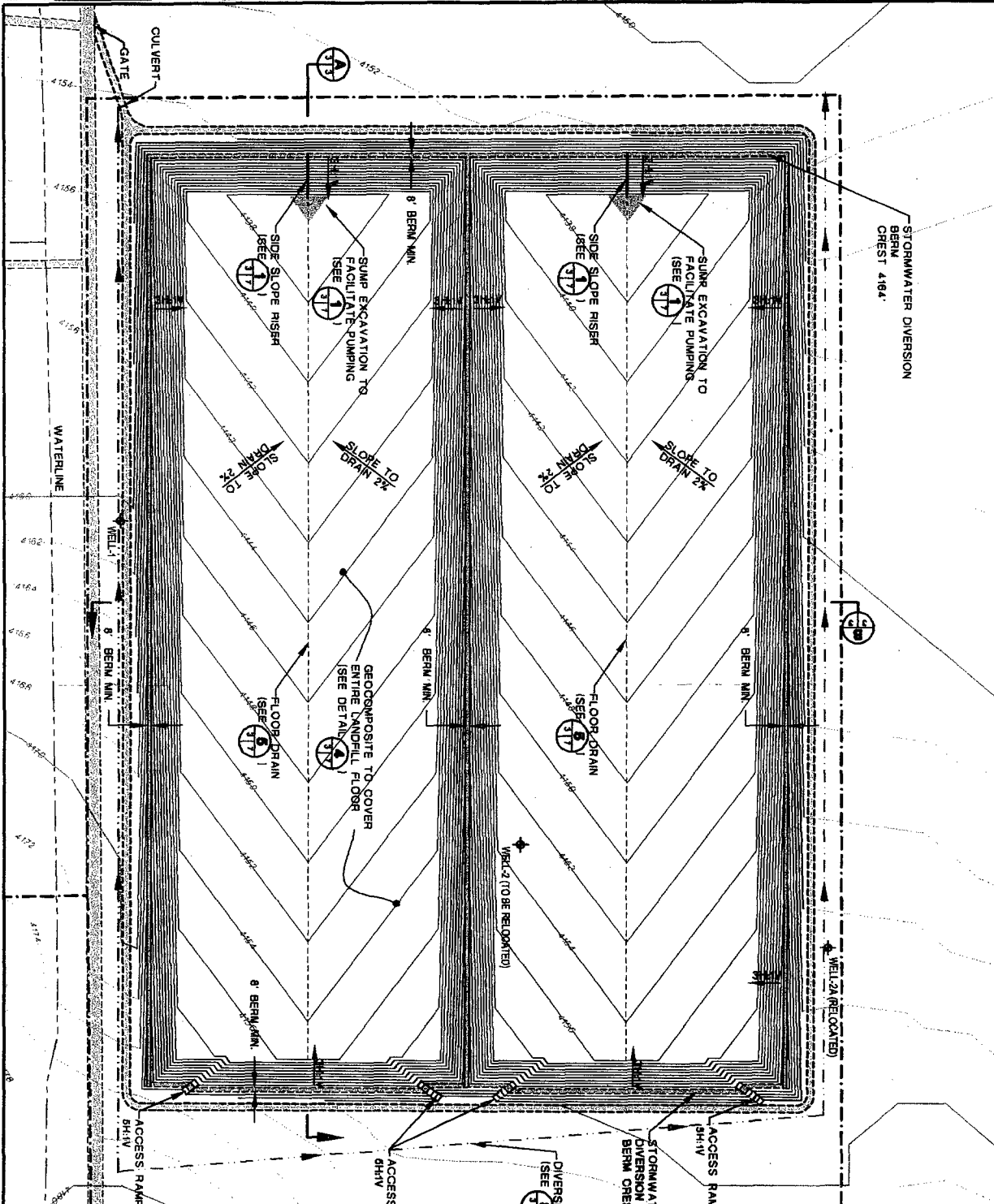
PROJECT:	COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE	

EXISTING CONDITIONS



MWH

Sheet <u>1</u> of <u>1</u> Sheets	
SCALE: As Shown	DRAWING NO. 02



STORMWATER DIVERSION
BERM
CREST 4184'

WELL 2 (TO BE RELOCATED)

WELL 2 (TO BE RELOCATED)

ACCESS RAMP

STORMWATER
DIVERSION
BERM CREST 4178'

DIVERSION DITCH
(SEE DETAIL 17)

ACCESS RAMP

8' BERM MIN.

GANDY MARLEY, INC.

PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE:
ULTIMATE EXCAVATION PLAN
4 CROSS-SECTIONS



Scale: 1" = 20' (Horizontal)
1" = 10' (Vertical)
DATE: 03/05/05
DRAWN BY: J. Smith
CHECKED BY: J. Smith

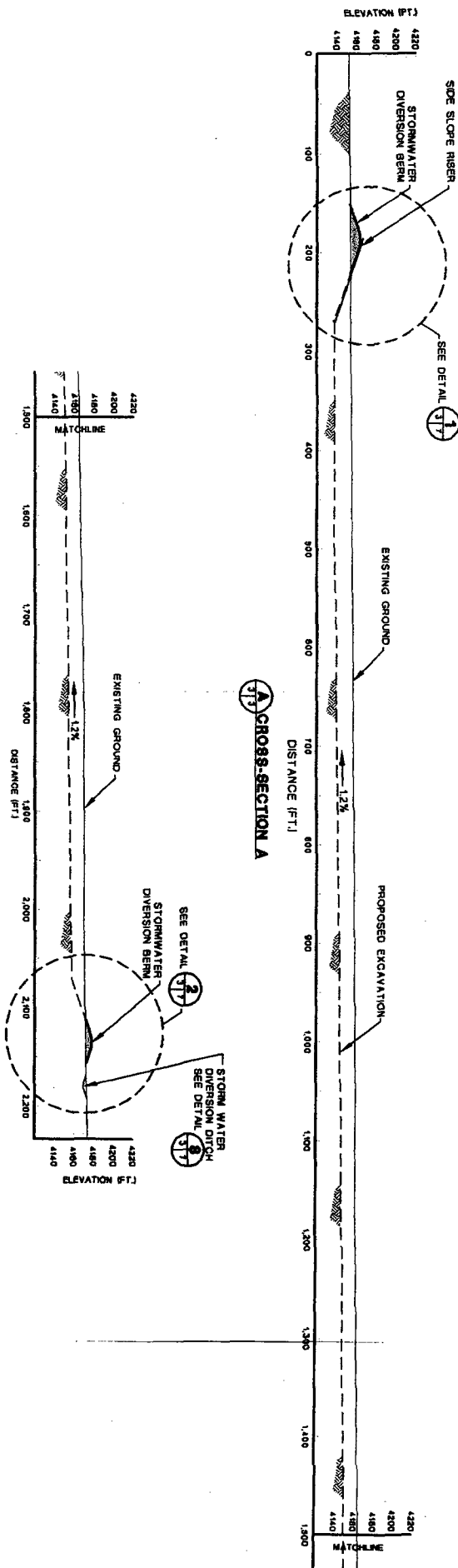
LEGEND

- EXISTING ROADS
- CONTOURS
- PROPERTY BOUNDARY/FENCELINE
- EXISTING WATERLINE
- NEW ROAD
- STORMWATER DIVERSION
DITCH AND FLOW DIRECTION
- MONITORING WELL (INSTALLED
2005)

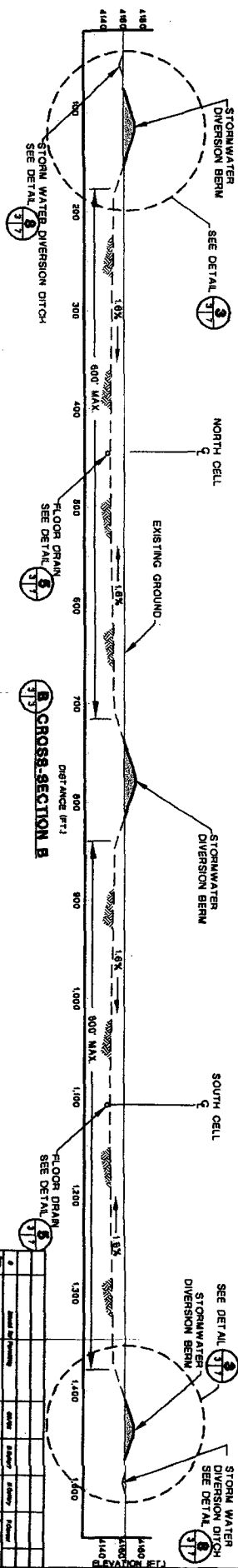


**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

- NOTES:
1. TO 10' F.T. TOPOGRAPHY OBTAINED FROM THE U.S. GEOLOGICAL SURVEY, 813 AERIALS POINT NE, OAKLAND, CA.
 2. 1 FT. TOPOGRAPHY INTERPOLATED FROM 10 FT. DATA.
 3. PROPERTY BOUNDARY ROAD AND WATERLINE DETERMINED FROM TAX MAP PROVIDED BY GANDY-MARLEY, INC. LOCATIONS ARE APPROXIMATE AS PROVIDED BY GANDY-MARLEY, INC.



A CROSS-SECTION A (CONT'D)



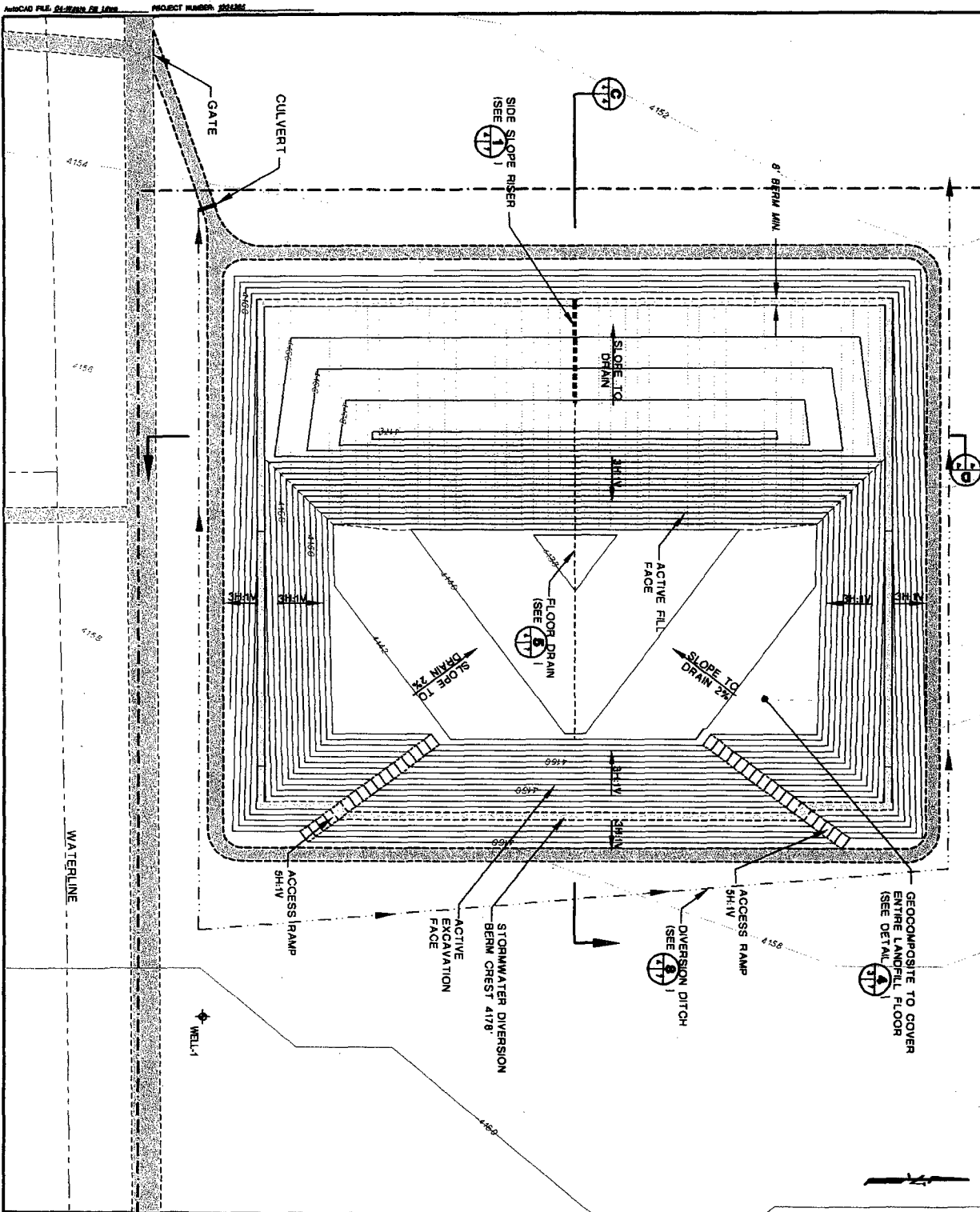
**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

DRAWING NO. WHERE
DETAIL/SECTION
IS REFERENCED

DRAWING NO. WHERE
DETAIL/SECTION
IS SHOWN

Sheet <u>2</u> of <u>2</u> sheets	DRAWING
SCALE	AS SHOWN

PROJECT:		GANDY MARLEY, INC.	
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY			
DRAWING TITLE:		ULTIMATE EXCAVATION PLAN	
		& CROSS-SECTIONS	
		Sheet 2 of 2 sheets DRAWING NO. 08	



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FOR PERMITTING PURPOSES ONLY**

GANDY MARLEY, INC.

PROJECT: COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE: WASTE FILLING PLAN & CROSS-SECTIONS
PHASE 1

MWH

Scale: 1" = 20' (Horizontal), 1" = 10' (Vertical)

Legend:

- EXISTING ROADS
- CONTOURS
- PROPERTY BOUNDARY/PERICLINE
- NEW ROAD
- BERM CREST
- COVER
- STORMWATER DIVERSION DITCH AND FLOW DIRECTION
- MONITORING WELL (WELL-1 INSTALLED 2003)

Notes:

1. TOPOGRAPHY OBTAINED FROM THE US DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, 712, MEDICAL POINT RD, QUAD 10000.
2. TOPOGRAPHY INTERPOLATED FROM 5 FT. PROPERTY BOUNDARY, ROAD AND WATERLINE DIGITIZED FROM PLAN PROVIDED BY GANDY MARLEY, INC.
3. COVER SHALL BE CONSTRUCTED TO FORM A GRADE SHOWN.

Location Key:

Scale: 1" = 20' (Horizontal), 1" = 10' (Vertical)

Legend:

- EXISTING ROADS
- CONTOURS
- PROPERTY BOUNDARY/PERICLINE
- NEW ROAD
- BERM CREST
- COVER
- STORMWATER DIVERSION DITCH AND FLOW DIRECTION
- MONITORING WELL (WELL-1 INSTALLED 2003)

LEGEND

- EXISTING ROADS
- CONTOURS
- PROPERTY BOUNDARY/PERICLINE
- NEW ROAD
- BERM CREST
- COVER
- STORMWATER DIVERSION DITCH AND FLOW DIRECTION
- MONITORING WELL (WELL-1 INSTALLED 2003)

Notes:

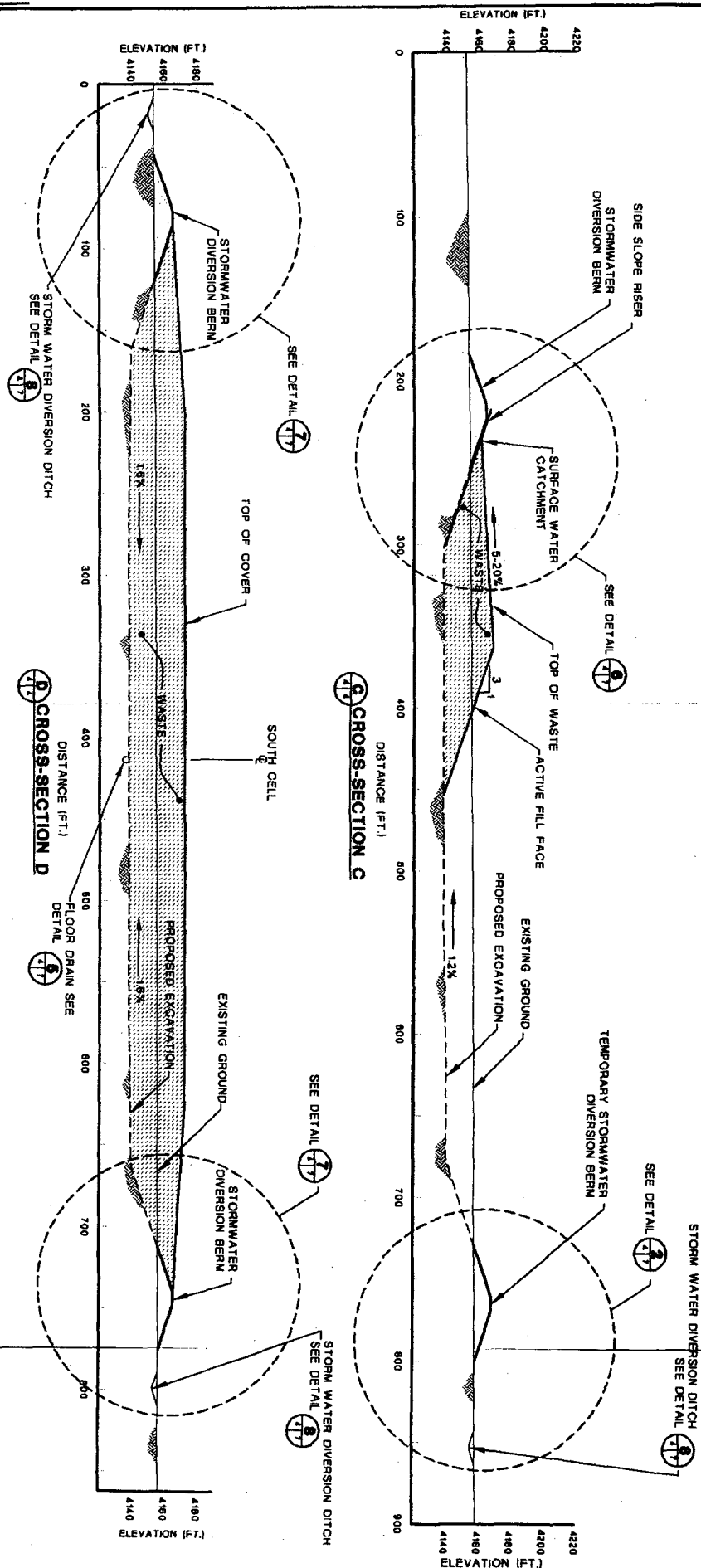
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2. TOPOGRAPHY INTERPOLATED FROM 5 FT. PROPERTY BOUNDARY, ROAD AND WATERLINE DIGITIZED FROM PLAN PROVIDED BY GANDY MARLEY, INC.
3. COVER SHALL BE CONSTRUCTED TO FORM A GRADE SHOWN.

Location Key:

Scale: 1" = 20' (Horizontal), 1" = 10' (Vertical)

Legend:

- EXISTING ROADS
- CONTOURS
- PROPERTY BOUNDARY/PERICLINE
- NEW ROAD
- BERM CREST
- COVER
- STORMWATER DIVERSION DITCH AND FLOW DIRECTION
- MONITORING WELL (WELL-1 INSTALLED 2003)



**NOT FOR CONSTRUCTION -
FOR PERMATTING PURPOSES ONLY**



DRAWING NO. WHERE
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DRAWING NO. WHERE
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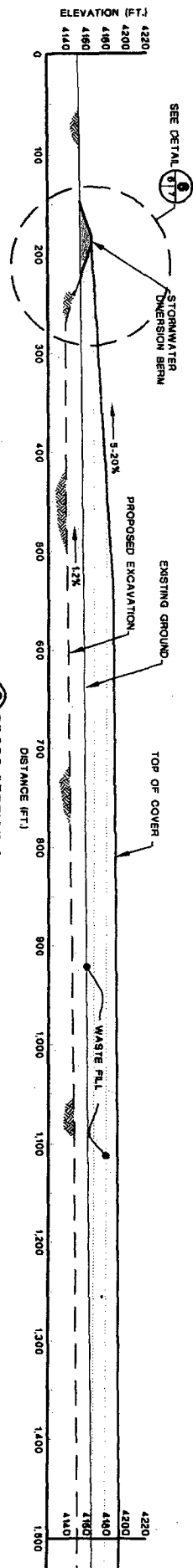
DETAIL/SECTION
 MARKING

MWH

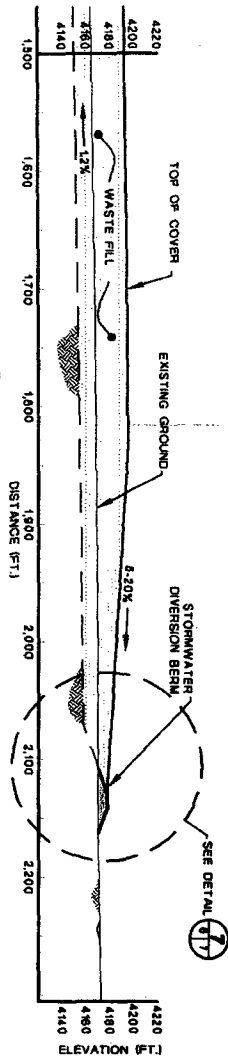
Sheet <u>2</u> of <u>2</u> Sheets	
SCALE	DRAWING NO.
As Given	04

PROJECT: COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE: WASTE FILLING PLAN & CROSS-SECTIONS
PHASE 1

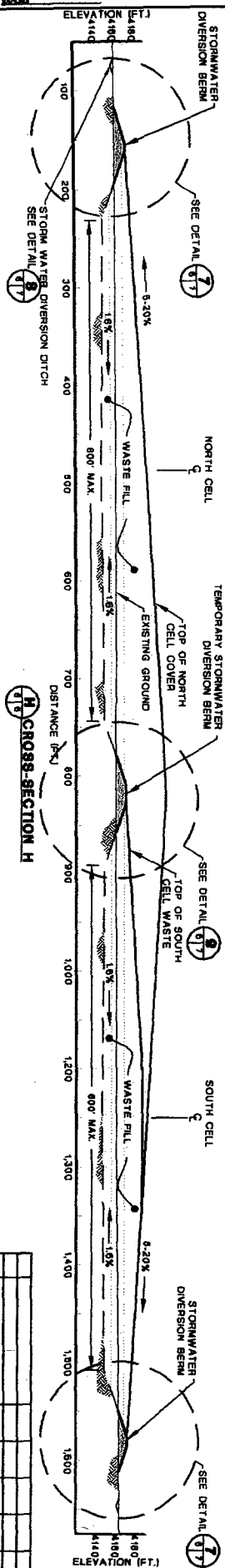
GANDY MARLEY, INC



G CROSS-SECTION G



G CROSS-SECTION G (CONT'D)



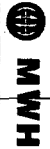
H CROSS-SECTION H

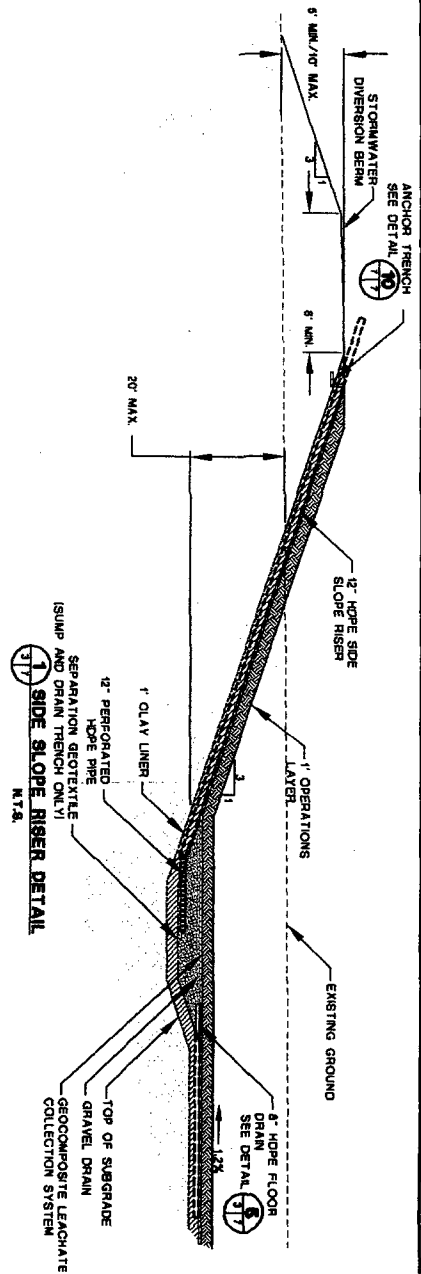
HORIZONTAL SCALE
1" = 50'
VERTICAL SCALE
1" = 10'

**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

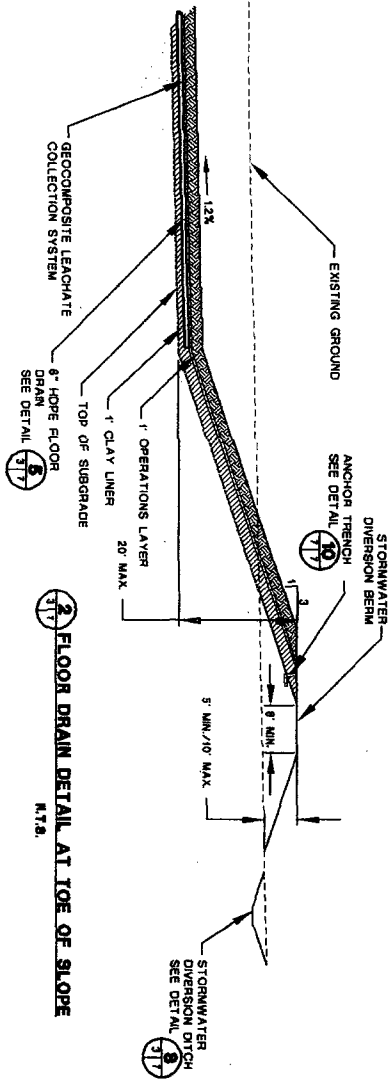
NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE
OF 3:1 AFTER CONSOLIDATION. SEE CHANCE
DRAWING NO. WHERE
CONSTRUCTION IS INDICATED
DRAWING NO. WHERE
CONSTRUCTION IS INDICATED

PROJECT:		GANDY MARLEY, INC.	
DRAWING TITLE:		ULTIMATE COVER PLAN	
DRAWING NO.:		CROSS-SECTIONS	
DATE:		10/1/00	
DRAWN BY:		J. J. JONES	
CHECKED BY:		J. J. JONES	
APPROVED BY:		J. J. JONES	
SCALE:		AS SHOWN	
SHEET NO.:		1 OF 2	
TOTAL SHEETS:		2	

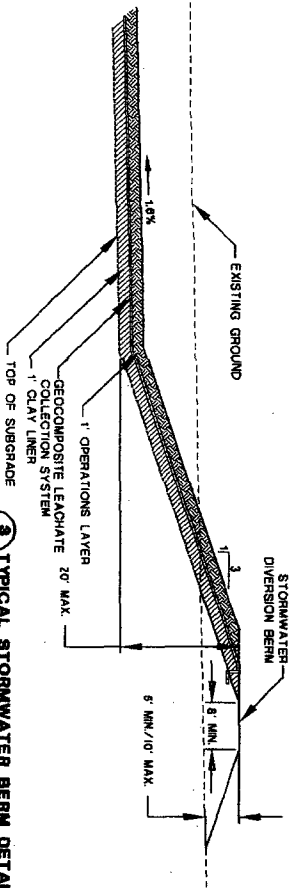




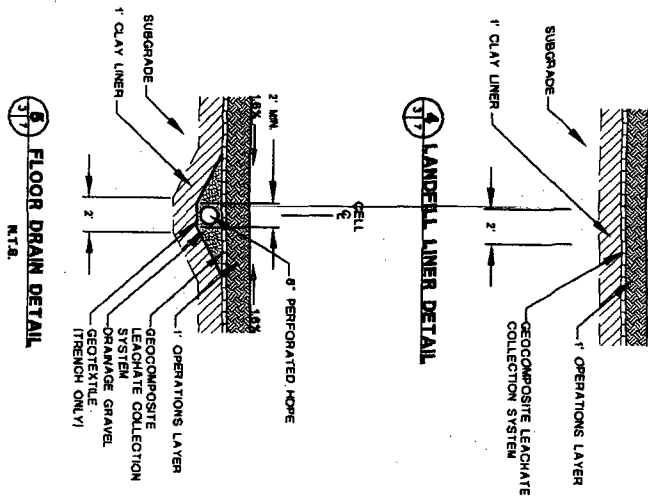
1 SIDE SLOPE RISER DETAIL
N.T.S.



2 FLOOR DRAIN DETAIL AT TOE OF SLOPE
N.T.S.



3 TYPICAL STORMWATER BERM DETAIL
N.T.S.



4 LANDFILL LINER DETAIL
N.T.S.

5 FLOOR DRAIN DETAIL
N.T.S.

NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY

DETAILING NO. WHERE
CONSTRUCTION
IS REQUIRED

DETAIL/SECTION
NUMBER

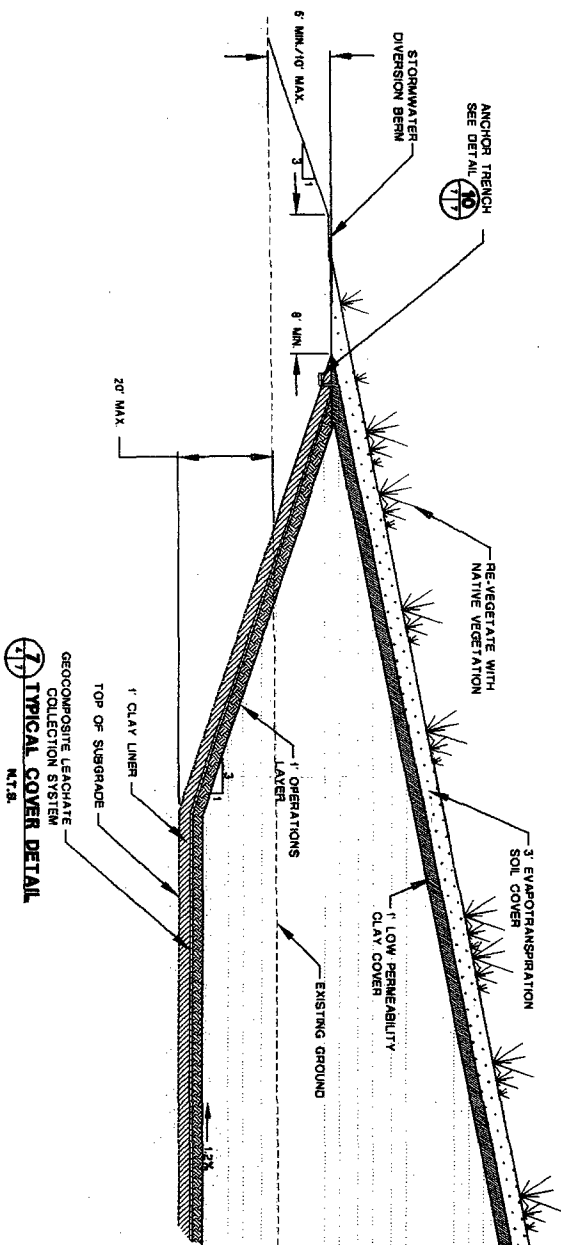
GANDY MARLEY, INC.

PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY

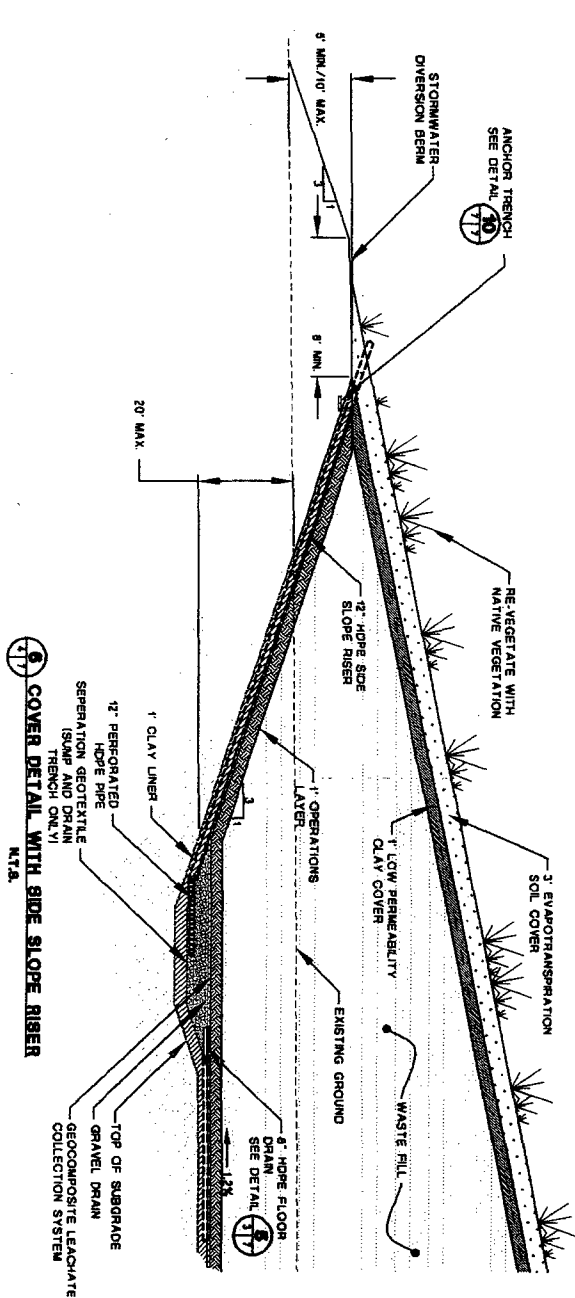
DRAWING TITLE:
TYPICAL DETAILS

MWH

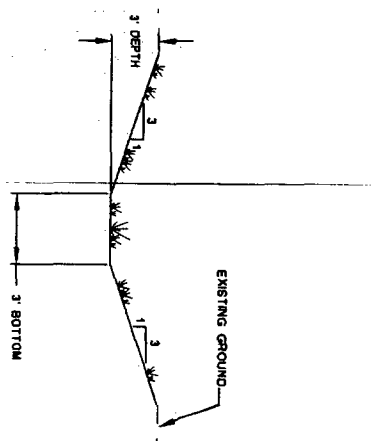
Scale: 1/4" = 1'-0"
Drawing No. 07



1 TYPICAL COVER DETAIL
N.T.S.



2 COVER DETAIL WITH SIDE SLOPE RISER
N.T.S.



3 STORMWATER DIVERSION DITCH
N.T.S.

NOTE: COVER SHALL BE CONSTRUCTED TO FORM A SLOPE OF 3:1 AFTER CONSOLIDATION.

DETAIL/SECTION RELATION
DRAWING NO. WHERE
DETAIL/SECTION
IS REFERENCED
IS SHOWN

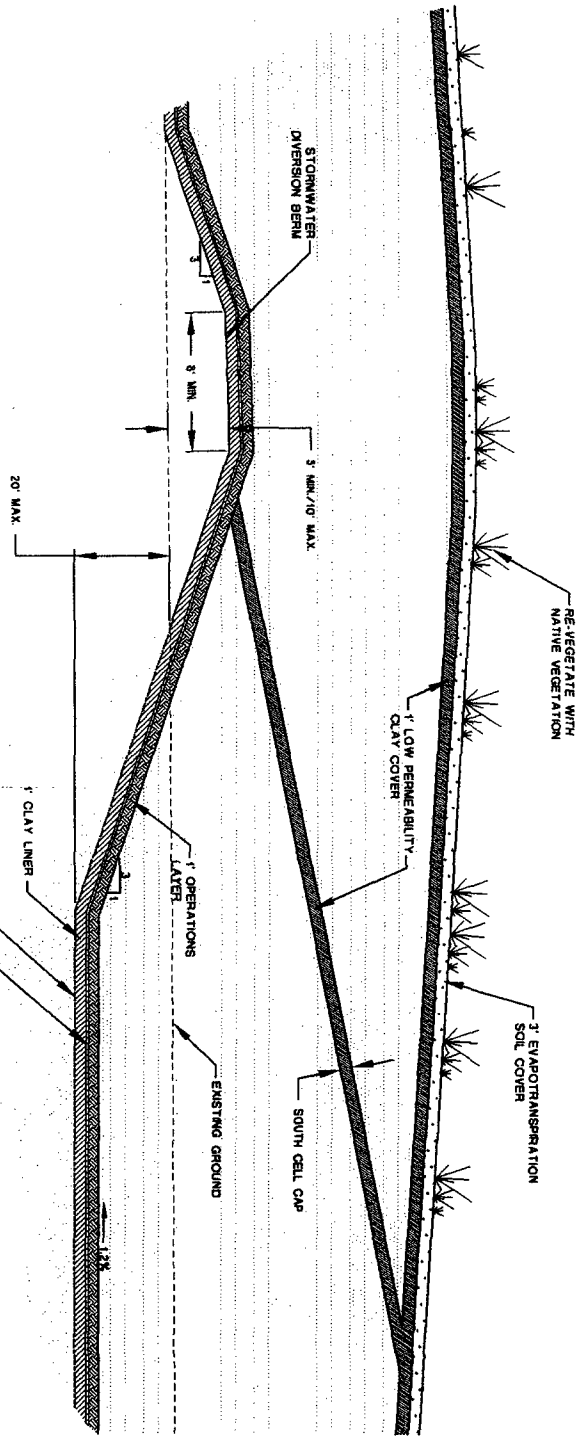
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GANDY MARLEY, INC.

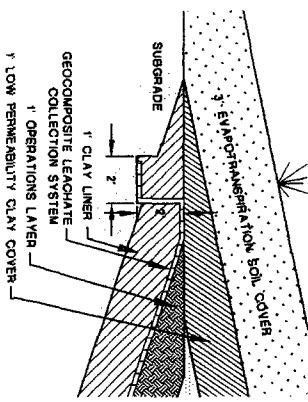
PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
DRAWING TITLE:
TYPICAL DETAIL 9



Scale: 1" = 10' 0"



9 OVERLAPPING COVER DETAIL
N.T.S.



10 ANCHOR TRENCH DETAIL
N.T.S.

NOTE:
COVER SHALL BE CONSTRUCTED TO FORM A SLOPE OF
3:1 AFTER CONSOLIDATION.

DRAWING NO. WHERE
CONSTRUCTION
IS SHOWN
DETAIL/SECTION
NUMBER

**NOT FOR CONSTRUCTION -
FOR PERMITTING PURPOSES ONLY**

GANDY MARLEY, INC.

PROJECT:
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY

DRAWING TITLE:
TYPICAL DETAILS

MWH

Scale: 1" = 10' 0" 1/2" Sheet
Drawing No. 07