SonomaCountyTransit
THE COUNTYWIDE SYSTEM

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Santa Rosa, California 95407
(707) 585-7516 Fax (707) 585-7713 A division of Sonoma County Transportation & Public Works

Date: July 24, 2015

To: Plan Holders – Healdsburg Intermodal Facility

From: Bryan Albee, Transit Systems Manager

Re: Addendum No. 4. – 6 Items

Addendum 4, Item 1 - Soils Report

Attached find the Soils Report for the Healdsburg Intermodal Facility project.

Addendum 4, Item 2 – Updated Plan Sheets D-1.1 and SP – 1.1

The revision on these two plan sheets are marked with a cloud and referenced in the revision block.

Addendum 4, Item 3 – Submitted questions:

Question: Is Builder's Risk insurance really needed for this project, normally used for buildings?

Response: As described in Section 7-1.06, item III.,"Builder's Risk," number 3 – Contractor is responsible for certain deductibles associated with County's "All-Risk" Course of Construction insurance, as it relates to this project.

Question: Item #68 and Item #69 – both callout for the payment for the bollards on this project, which is correct??

Response: Per ST 17 there are two types of bollards, one with locks and the other without.

Question: Drawing C1.1 has one trash can and L-2 has two trash cans, which is correct?

Response: C1.1 is the correct plan.

Question: Drawing C1.2 has the handrail indicated with no limits (start or stop), this is a lump sum item. Can we get more specific information to quantify?

Response: Handrail is continuous on each side of the ramp. The end of the rail terminates two feet from the edge of the sidewalk or bike path.

Question: It appears that Item #9 Demolition includes all the removals on the site such as concrete, pipe, abandonments, inlets, asphalt concrete, utility adjustment, restoration, and anything else not covered by Items #6 & #7. Is this correct?

Response: Yes.

Question: Will SMART be requiring any railroad crossing operations tests after the railroad tracks are removed and any necessary bonding has been completed, since the railroad signal circuit will be altered?

Response from Greggory Jennings, Sr. Rail Engineer, SMART: Any work that is done that will affect the crossing will require testing of the crossing after completion of track. The Healdsburg five-way intersection belongs to SMART on the south and NCRA to the north, so a direct inquiry to NCRA would be required. It should be noted that if the crossing isn't in service, or isn't working prior to construction, SMART would consider waiving this requirement. SMART should be present for any testing done before construction or after construction to confirm the functional state of the crossing.

Question: Who will be responsible for updating the railroad crossing signal prints on the crossing to show the changes to the track structure?

Response from Greggory Jennings, Sr. Rail Engineer, SMART: The contractor will be responsible for providing as-built drawings to the owner who will then pass them to SMART.

Question: It looks like the quantities might be incorrect for Items # 42 & 45 – Profiles 8 & 9 indicate 6" DIP = 44 lf and Profiles 10-14 indicate 6" pipe no type = 176 lf.

Response: Bid Item #42 is correct. Drainage systems 8, 9, 10, 11, 12, 13, and 14 are DIP. For bid item #45, It should have been labeled ABS. See detail 17 on sheet CD1.2. The price includes fittings as shown on the detail.

Question: What is the address to SMART's storage facility, and will there be enough access at the facility for a truck to enter, unload, and turn around in?

Response: The location of SMART's storage facility is undetermined at this time. Bidders should anticipate that the site will be within 15 miles of the project site.

Question: Is the RR track on the south side of the project active? If so, do you know how often trains use that track (daily, weekly). Our insurance company is asking in order to determine if we have adequate coverage.

Response: The rail line at the Healdsburg Depot (project site) is currently inactive and is anticipated to remain inactive through 2016.

Question: Please confirm that the material referred to in the last sentence of Section 100-1.13 of the Special Provisions should be listed as paid for under bid item 11 (Select Fill) rather than bid item 14 (Remove and Salvage Water Meter).

Response: The bid item should be 11, rather than 14. See revised Section 100-1.13 below:

100-1.13 RAILROAD SIDING TRACK REMOVAL, SWITCH REMOVAL AND RECONSTRUCTION (BID ITEM #5)

A railroad station siding shall be removed. The work includes the removal of the track ties and immobilizing ancillary items such as the manual switch gear. All rail shall be removed and salvaged to the SMART Corporation Yard. The railroad ties shall be removed and become the property of the contractor. The ballast may be used as construction fill on the project with the approval of the resident engineer. Excess ballast shall become the property of the contractor. Work includes the over excavation and recompaction to 30-inches depth for the width of fifteen feet or the width of the pathway, including shoulders whichever is greater. Any unsuitable material shall become the property of the contractor and removed from the construction area. Voids caused by the removal of unsuitable material may be backfilled with reprocessed asphalt or suitable excess material from onsite excavation. If existing reprocessed asphalt or on site borrow is not available, then the contractor shall place select fill. Tickets shall be provided for any material imported to the site for quantity. This material shall be paid for under ~~bid item 14~~ ***bid item 11***.

Addendum 4, Item 4 - Bid Item Corrections:

Bid item for Section 100-16 should be #54

Section 100-16 FIRE HYDRANT (BID ITEM #~~53~~ *54*)

Bid item for 111-1.24A should be #59

Section 111-1.24A REMOVE PAVEMENT STRIPING, RAISED PAVEMENT MARKERS AND PAVEMENT MARKINGS (BID ITEM #~~58~~ *59*)

Bid item for 111-1.24B should be #60

Section 111.1.24B RAISED PAVEMENT MARKER TRAFFIC STRIPE (BID ITEM #~~59~~ *60*)

Addendum 4, Item 5 - Updated Bid Sheet

Attached find an updated bid sheet. Reference numbers have been corrected.

Addendum 4, Item 6 - Updated header for Section 100-15:

100-15 CONSTRUCT NEW STORM DRAIN MANHOLE OVER EXISTING PIPE (BID ITEM #51) NEW TYPE G1 INLET (BID ITEM# 47) AND NEW COH CURB INLETS (BID ITEM #48) SPECIAL FIELD INLET DETAIL SYSTEM (BID ITEM #49), CONNECT NEW 18" PIPE INTO EXISTING MANHOLE, CONSTRUCT ROOF LEADER CONNECTION (ABS) PIPE WITH FITTINGS (BID ITEM#52)

The question period is now closed. Planholders are reminded of the bid opening date:

Sealed bids will be received at the office of the Clerk of the Board of Supervisors, Room 100A, 575 Administration Drive, Santa Rosa, California 95403 on ***Wednesday, July 29, 2015***, until the hour of 2:30 p.m. (according to the wall clock in the reception area of the office of the Clerk of the Board of Supervisors). They then will be transferred to a predetermined meeting room designated by the Sonoma County Department of Transportation and Public Works where they will be publicly opened and read aloud by the Sonoma County Director of Transportation and Public Works or her designee. The Sonoma County Director of Transportation and Public Works will review the bids and refer the bids to the Board of Supervisors to consider awarding the project within 60 days of bid opening.

A Report Prepared for:

DKS Associates
1956 Webster Street, Suite 300
Oakland, California 94612

Attention: Mr. Thomas Krakow

GEOTECHNICAL INVESTIGATION REPORT
HEALDSBURG INTERMODEL
HARMON STREET
HEALDSBURG, CALIFORNIA

Kleinfelder Job No: 34674

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Project Geologist

Lyle E. Lewis
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January 26, 2004

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GEOTECHNICAL INVESTIGATION REPORT
HEALDSBURG INTERMODEL
HARMON STREET
HEALDSBURG, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the planned Healdsburg Intermodel transportation facility located on Harmon Street in Healdsburg, California. The area investigated during this study is hereinafter referred to as the "site". A Site Vicinity Map showing the location of the site is presented on Plate 1. Work performed during this investigation was conducted in accordance with the tasks described in our proposal dated November 6, 2002.

1.1 SITE LOCATION AND DESCRIPTION

The project site is located both south and northeast of the intersection of Fitch and Harmon Streets. The southern and northern areas of the site are relatively flat, however, the northern part of the site is about five feet higher in elevation than the southern area. The northern site area is covered with medium high grasses, a few small trees and one large oak tree. The southern area is covered with gravel and small areas of deteriorating asphalt pavement. Two existing railroad station buildings are located on the southern area of the site adjacent to the railroad tracks.

1.2 PROJECT DESCRIPTION

We understand the project will include the construction of a concrete rail platform, a park-and-ride lot, access driveways, curb and gutter, passenger waiting areas, sidewalks, landscaping, irrigation and utilities with no new covered structures. Landscape and sound barrier walls may be necessary but, to our knowledge, are not currently part of the plan. It is our understanding that the two existing buildings will have some exterior rehabilitation, but no structural or interior improvements are planned as part of this project. We further understand that the train platform

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to develop geotechnical conclusions and recommendations for the planned project. The scope of this investigation included researching published data, evaluating site geologic conditions by drilling test borings, obtaining and analyzing field and laboratory data to address the following:

1. Geologic Hazards
2. Site preparation and grading.
3. Pavement design.
4. Train platform and slabs-on-grade.
5. Utility trenches.
6. Retaining walls.

1.4 AUTHORIZATION

This investigation was authorized by Mr. Thomas J. Krakow in DKS Associates' Subconsultant Agreement dated July 3, 2003.

2.0 GEOLOGY AND GEOLOGIC HAZARDS

2.1 REGIONAL GEOLOGY

The site is located within the Coast Ranges Geomorphic Province of Northern California. The Coast Ranges Province is a geologically complex and seismically active region characterized by subparallel northwest-trending faults, mountain ranges, and valleys, which are a reflection of the dominant northwest structural trend of the bedrock in this region. The oldest mapped bedrock unit within the Coast Ranges Province is the Franciscan Complex, a diverse group of igneous, sedimentary and metamorphic rocks of Upper Jurassic to Cretaceous age (140 to 65 million years old). Since deposition, the bedrock materials have been subjected to faulting and folding. These rocks are part of a northwest-trending belt of material that lies along the east side of the San Andreas fault system. Locally, these older bedrock deposits are overlain by younger, Quaternary age (less than 2 million years old) marsh, alluvial and colluvial deposits.

2.2 SITE GEOLOGY

The geologic map prepared by Huffman and Armstrong (1980) describes the site as underlain by alluvium; sand, gravel, silt and clay. The same publication indicates that bedrock in the area of the site could be as deep as 150 feet.

2.3 FAULTING AND SEISMICITY

The site is not located within an Alquist-Priolo Earthquake Fault Zone and no known active faults traverse the site. Healdsburg is located in a region traditionally characterized by few active faults and moderate seismic activity. However, the entire North Bay region is seismically active and earthquakes of various magnitudes occur frequently. Numerous discontinuous thrust faults representing pre-Quaternary structural displacement have been mapped throughout the vicinity of the site and within the general area of the Coast Ranges Province by Blake et. al.

angular faults are not considered active and capable of producing earthquakes. Extensive folding and thrust faulting during late Cretaceous through early Tertiary geologic time created complex geologic conditions that underlie the highly varied topography of today.

The nearest faults considered seismically active (experiencing surface rupture within the last 11,000 years) and capable of producing large earthquakes are the Healdsburg-Rodgers Creek, Maacama and San Andreas faults. These faults are located approximately 5, 9 and 32 km, respectively, from the site. Based upon empirical data and the length of the Healdsburg-Rodgers Creek, Maacama and San Andreas faults, the maximum credible earthquakes are approximately 7.5, 7.5 and 8.3 Magnitude (Richter Magnitude), or 7.0, 7.1 and 7.9 Moment Magnitude, respectively (CDMG, 1997). The intensity of future shaking will depend on the distance from the site to the earthquake focus, magnitude of the earthquake and the response of the underlying soil and bedrock.

We evaluated anticipated peak bedrock accelerations at the site from three different sources, including Seed and Idriss (1982) and Boore, Joyner and Fumal (1993 and 1997). Based on the results of our evaluation of bedrock acceleration data, a peak bedrock acceleration approaching 0.6g, 0.5g and 0.4g can be expected at the site for the Healdsburg-Rodgers Creek, Maacama and San Andreas faults, respectively.

3.0 FIELD INVESTIGATION

On October 24, 2003, we explored the subsurface conditions at the site by drilling eight test borings. Our boring locations are shown on the Site and Boring Location Plan presented on Plate 2.

The borings were drilled with truck-mounted (Mobile B-53) power-auger drilling equipment utilizing 6-inch-diameter augers to depths ranging from 4¾ feet to 14¼ feet. Our project geologist observed the drilling, logged the conditions encountered, and obtained samples for visual classification and laboratory testing. Samples of the soil were obtained using a 2.43-inch (inside diameter) Sprague and Henwood sampler. The hammer was driven with a 140-pound hammer dropped 30 inches. The blows required to drive the sampler were recorded and converted to equivalent Standard Penetration blow counts for correlation with empirical data.

Two bulk samples for R-Value testing were collected from cuttings generated by the borings. Bulk A was collected from the northern site while Bulk B was collected from the southern site.

Visual classifications were made in accordance with the Soil Classification Chart as presented on Plate A-1 of Appendix A. Boring logs are presented on Plates A-2 through A-7. The stratification lines presented on the logs represent the approximate boundary between soil types; the transitions are generally gradational.

4.0 LABORATORY TESTING

Selected samples were tested to evaluate pertinent engineering and physical properties of the soils encountered. The laboratory testing program evaluated the plasticity, moisture and density, strength and resistance value. Classifications made in the field were modified, as appropriate, based on the laboratory test results; classifications presented on the boring logs reflect modifications made as a result of laboratory tests. The results of the laboratory testing are presented in Appendix B.

5.0 SURFACE AND SUBSURFACE CONDITIONS

In general, the northern site is covered with gravelly sandy clay and clayey sandy gravel that is very stiff or dense and dry. The southern part of the site is mostly covered with gray clayey, silty, sandy, gravel that is one half to two feet thick. The gravel appears to be fill material placed on the site for wheel traffic access. Underlying the surface soils, we encountered deposits of laterally discontinuous beds of sandy clay and silt, sandy gravel, gravelly sand and clayey sand to the total depths explored.

During drilling we did not encounter groundwater, however, it should be understood that seepage and groundwater levels can vary seasonally, and could rise and fall several feet annually. It should also be understood that the drilling was performed during the driest time of this year.

6.0 CONCLUSIONS

6.1 GENERAL

Based on the results of our field exploration, laboratory testing, and engineering analyses, we conclude that, from a geotechnical engineering standpoint, the site can be used for the proposed project.

6.2 SITE SEISMIC CHARACTERIZATION

The site is not located within an Earthquake Fault Zone as defined by the California Division of Mines and Geology and no known fault traces transverse the site. Therefore, the risk of ground rupture within the limits of the site is considered to be low. However, because of the proximity to the Healdsburg-Rodgers Creek, Maacama and San Andreas faults, the site will be subjected to very strong ground shaking during a moderate to major earthquake on these or other active faults in the area. On the basis of current technology, as well as historical evidence, it is reasonable to assume that during the life of the proposed development, it will be subjected to at least one moderate to severe earthquake that could produce potentially damaging ground shaking at the site. Further, it is anticipated that the subject site will periodically experience small to moderate magnitude earthquakes. Therefore, future renovation plans for the existing buildings or any proposed buildings should be designed to withstand the effects of the anticipated strong ground shaking.

Field and laboratory test data indicate that the site and proximity can be assigned a soil profile type S_D based on average soil properties in the top 100 feet and Table 16-J of the 1997 UBC.

According to Figure 16-2 of the 1997 UBC, the site is within Seismic Zone 4 and a Seismic Zone Factor, Z, of 0.4 should be used. Based on our interpretation of the "Maps of Known

and other sources, the site is located 5 kilometers from the Healdsburg-Rodgers Creek fault, which is classified as a Seismic Source Type A. Based on the tables and procedures provided in the 1997 UBC, the following parameters apply:

SEISMIC SITE PARAMETERS[1]					
Zone	Soil Profile	N_a	N_v	C_a	C_v
0.4	S_D	1.20	1.60	0.53	1.02

[1]These parameters pertain to geotechnical and geologic factors only and may be reduced, if appropriate, in accordance with UBC section 1629.4.2, section 1630.2.3.2 or other sections as determined relevant by the structural engineer.

7.0 RECOMMENDATIONS

7.1 SITE PREPARATION AND GRADING

Areas to be graded should be cleared of shrubs and stripped of the upper soils containing root growth, organic matter, and concrete elements if encountered. Designated trees should be removed and the root systems excavated. We anticipate removal of one to three inches of soil containing organic matter may be necessary on the northern site and little or none on the southern site. All foundation elements, basements and other existing remnants of the buildings, if encountered, should be removed.

If additional material is necessary to achieve design grades, select fill should be imported. Select fill material should have a plasticity index of 15 percent or less, a maximum liquid limit of 40 percent and should be free of debris and organic matter. Select fill should not contain rocks or lumps larger than six inches in greatest dimension, and no more than 25 percent should be larger than two and one-half inches.

In general, areas to receive fill, after stripping and/or soil removal, should be scarified at least 6 inches deep, moisture conditioned to near optimum or slightly above optimum moisture content and compacted to at least 90 percent of the maximum dry density as described in ASTM D-1557. If areas appear to be yielding and/or saturated, deeper recompaction may be required, as determined by Kleinfelder.

It does not appear that fill slopes are planned, however if necessary, finished slopes should be trimmed to expose dense materials and should be no steeper than two horizontal to one vertical (2:1). Slopes should be planted with fast-growing, deep-rooted ground cover to help reduce sloughing and erosion.

We expect about 0% to 10% shrinkage after compaction of the gravelly surface soils. Clayey soil below about 2.5 feet (if cuts that deep are required or trench spoils are used as fill) will have shrinkage of approximately 5% to 15% after compaction.

When grading is performed in the winter, spring or early summer, there is a risk that the site may be saturated and too soft to support construction equipment. Normally suitable fill material may be too wet to properly compact and excavation bottoms can become unstable. Such soil conditions could be mitigated by overexcavation and backfilling with more expensive, imported fill, lime-treating the on-site soils, and/or other means.

Site preparation and grading operations should be observed by a representative of Kleinfelder. This will allow us to check whether unforeseen or detrimental materials are exposed by the construction equipment and to modify our recommendations, if necessary. We also can perform tests to evaluate the density of compacted soils.

7.2 PAVEMENT DESIGN

Using the California Department of Transportation (Caltrans) Flexible Pavement Design Method, the R-Value test data and the Traffic Indices (T.I.'s) of 4.5 for parking stalls and 6 for driveways and aisles (T.I.'s provided by DKS Associates) the following tables of pavement sections were obtained. The R-Value test data resulted in an R-Values of 47 and 59. For this pavement design, we used an R-Value of 45. After the completion of rough site grading, we should verify that the soils exposed in the subgrade have an R-Value of at least 45. If the R-Value is less than 45, the pavement thicknesses will have to be increased.

ASPHALT CONCRETE PAVEMENT DESIGN GRAVELLY SURFAC SOILS R-VALUE = 45					
	Pavement Section (inches)*				
	Alternate 1		Alternate 2		
T.I.	AC	AB	AC	AB	ASB
4.5	3	4	The use of ASB with this pavement section would result in an AB thickness less than 4 inches, which is not a practical pavement section.		
6	3	6			
*AC = Type B Asphalt Concrete AB = Class 2 Aggregate Base (Minimum R-Value = 78) ASB = Class 2 Aggregate Sub-base (Minimum R-Value = 50)					

For rigid pavements, we recommend using a soil subgrade modulus of 175 pounds per cubic inch (pci).

Prior to subgrade preparation, utility trench backfills should be properly placed and compacted. The upper six inches of subgrade should then be scarified, moisture conditioned to within 2 percent of optimum moisture content and compacted to least 95 percent. After compaction, the surface should be smooth and unyielding. The subgrade soils should be maintained in a moist condition, free of shrinkage cracks, until covered with the complete pavement section. Kleinfelder should be retained to observe and test subgrade prior to placement of aggregate base.

Class 2 Aggregate Base should conform to the requirements of the City of Healdsburg and/or Section 26 of Caltrans Standard Specifications (latest edition). Aggregate base should be placed in thin lifts in a manner to prevent segregation, uniformly moisture conditioned, and compacted to at least 95 percent relative compaction to provide a smooth, unyielding surface. The asphalt concrete surfacing should conform to the quality requirements of the City and/or Caltrans Standard Specifications (latest edition). Kleinfelder should be retained to test aggregate base for conformance to the project specifications.

7.3 TRAIN PLATFORM AND EXTERIOR SLABS-ON-GRADE

Based on laboratory test data from our field investigation, we recommend using a bearing pressure of 2000 pounds per square foot (pcf) for design of the slab of the train platform. For complete design information, refer to Section 7.5 (Retaining and Barrier Walls). Exterior concrete slabs-on-grade should be underlain with properly moisture conditioned and compacted soil as discussed in Site Preparation and Grading (Section 7.1).

Special precautions must be taken during the placement and curing of concrete slabs. Excessive slump (high water-cement ratio) of the concrete an/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking or curling of the slabs. High water-cement ratio and/or improper curing also greatly increase the water vapor permeability of concrete. We recommend that concrete placement and curing operations be performed in accordance with the American Concrete Institute (ACI) Manual.

7.4 UTILITY TRENCHES

Utility lines should be bedded with clean sand or minus ¾-inch crushed rock from a minimum of three inches below to at least six inches above the top of the pipe. Trenches should be backfilled with material that is mechanically compacted to at least 90 percent relative compaction. Lift thickness should not exceed eight inches in uncompacted thickness. Compaction by jetting should not be permitted.

7.5 RETAINING AND BARRIER WALLS

Retaining walls that are free to rotate at least 0.1 percent of their height and support a level backslope should be designed to resist pressures resulting from an active equivalent fluid weight of 40 pcf (triangular distribution). Where backslopes are steeper than 3:1, and less than 2:1, the walls should be designed using 50 pcf. Walls that support a 2:1 slope should be designed using 60 pcf. If walls are constrained at the top and cannot tilt, at-rest pressures are generated and equivalent fluid weights of 60, 70 and 80 pcf, respectively, should be used. These lateral pressures assume that the walls are fully backdrained. Where retaining walls are subject to surcharge loads such as from buildings or vehicular traffic, the walls should be designed to resist

an added surcharge. Kleinfelder should be notified to assign increased lateral loading on the walls when it is known if there will be surcharge loading. Retaining walls can be supported on spread footings.

Retaining walls and barrier walls can be supported on spread footings. Spread footings should be at least 15 inches wide and should be bottomed at least 18 inches below the lowest adjacent final grades. Final footing excavation depths should be determined in the field by the geotechnical engineer. Spread footings can be designed to impose dead plus code live load and total design load (including wind or seismic forces) bearing pressures of 2,000 and 3,000 pounds per square foot (psf), respectively. Lateral loads can be resisted by a combination of a passive pressure of 300 pounds per cubic foot (pcf) and a friction factor of 0.35. The upper one-foot should be neglected unless it is covered by a concrete slab.

Retaining walls should be fully backdrained. In general, backdrains should consist of 4-inch-diameter, perforated rigid plastic pipe (SDR 35 or equivalent) sloped to drain to outlets by gravity and clean, free-draining crushed rock or gravel. The drainrock should conform to the quality requirements for Class 2 Permeable materials in accordance with the latest edition of the Caltrans Standard Specifications. As an alternative, 3/4-inch drainrock could be used if separated from the adjacent soil and covered by a nonwoven, geotextile fabric such as Mirafi 140N, or equivalent. The bottom of the pipe should be at least 8 inches below the adjacent finish elevation, where applicable. The crushed rock or gravel should extend to within 1 foot of the finished surface. The upper 12 inches should be backfilled with compacted soil to inhibit surface water infiltration. The ground surface behind retaining walls should be sloped to drain.

Where migration of moisture through retaining walls would be detrimental, retaining walls should be treated in some manner so as to be water-proof. In general, retaining walls will yield slightly during backfilling and should be backfilled prior to building on or adjacent to the walls.

8.0 ADDITIONAL SERVICES AND LIMITATIONS

8.1 ADDITIONAL SERVICES

Kleinfelder recommends that we be retained to review the final project plans and specifications to determine if they are consistent with the recommendations presented in this report. In addition, we should be retained to observe grading, trench backfilling, pavement construction and foundation excavations to verify that conditions are as anticipated and to modify our recommendations, if warranted.

If during construction, subsurface conditions are different from those encountered during the exploration, we should be advised at once so that these conditions may be reviewed and our recommendations reconsidered. The recommendations made in this report are contingent upon our notification and review of changed conditions.

If more than 18 months have elapsed between the submission of this report and the start of subsequent project construction, or if conditions have changed because of natural causes or other construction operations at or adjacent to the site, the recommendations made in this report may no longer be valid or appropriate. In such cases, we recommend that this report be reviewed by us to determine the applicability of the conclusions and recommendations considering the time lapsed or changed conditions. The recommendations made in the report are contingent upon such a review.

These supplemental services would be performed on an as-requested basis and would be in addition to the fee charged for this geotechnical investigation. We cannot accept responsibility for conditions, situations, or stages of construction that we are not retained to observe. If other engineers perform such construction observation, we cannot be responsible for their interpretation of our conclusions and recommendations presented herein.

8.2 LIMITATIONS

This report has been prepared by Kleinfelder for the exclusive use of DKS Associates and their consultants for development of the proposed project described in this report.

Our services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. We provide no other warranty, either expressed or implied. Our conclusions and recommendations are based on the information developed by Kleinfelder during this investigation, other work performed in the vicinity of the site, our laboratory testing program, and professional judgment. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications and our observation of subsequent project construction.

Site conditions and cultural features described in the text of this report are those existing at the time of our investigation and as encountered in our subsurface exploration for this study, and may not necessarily be the same or comparable at other times.

Our evaluation of subsurface conditions at the site has considered subgrade soil and groundwater conditions present at the time of our investigation. The influence(s) of post-construction changes to these conditions such as introduction of water into the subsurface will likely influence future performance of the proposed project. Whereas our scope of services addresses present groundwater conditions, future irrigation, broken water pipelines, etc. may adversely influence the project and should be addressed and mitigated, as needed, by specialized slab and flooring system designers having local knowledge.

The scope of our services did not include an environmental assessment or an investigation of the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air on, below or around this site.

Any party other than DKS Associates or a regulatory agency who would like to use this report should notify Kleinfelder. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with this

requirement by any party will release Kleinfelder from any and all liability resulting from the unauthorized use of this report.

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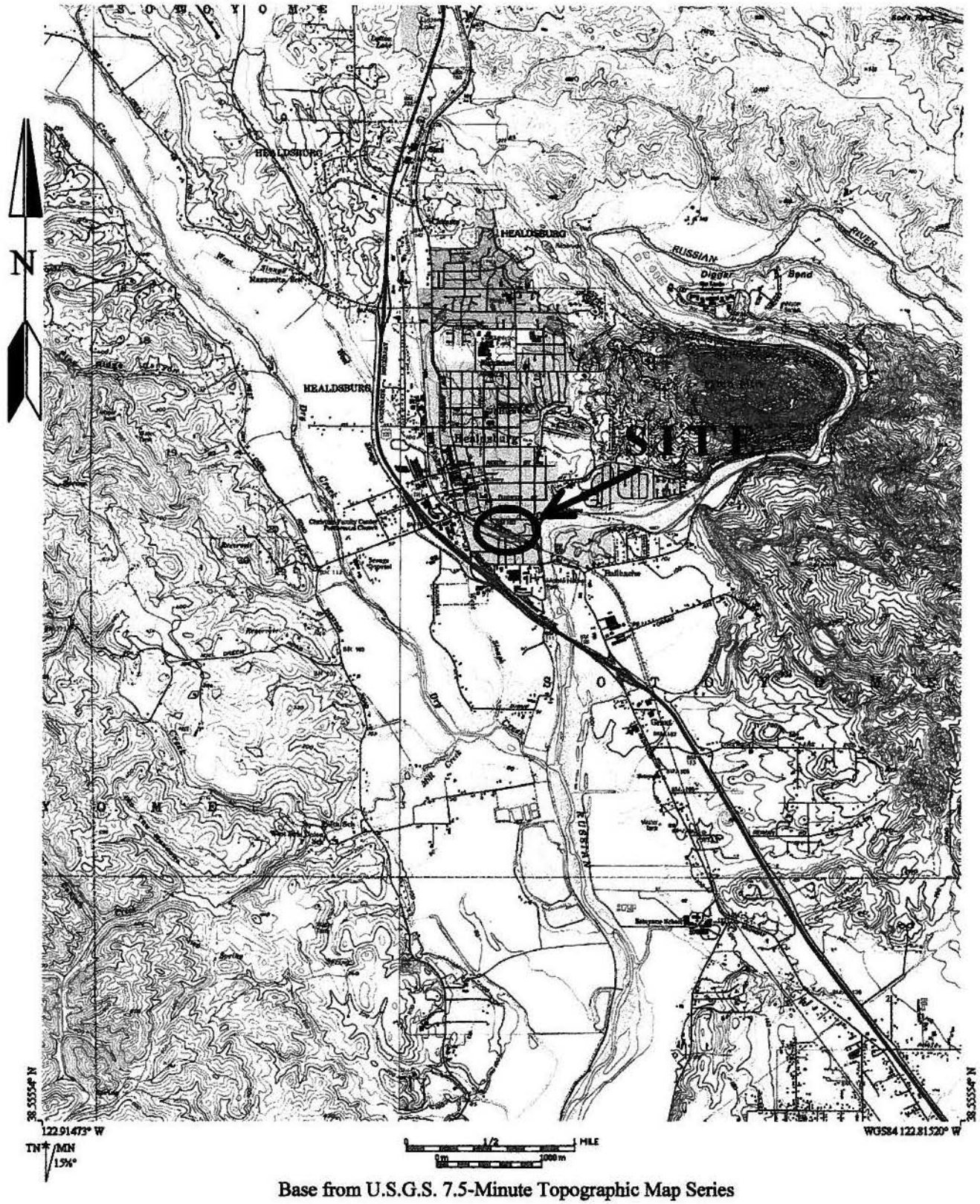


Base from U.S.G.S. 7.5-Minute Topographic Map Series

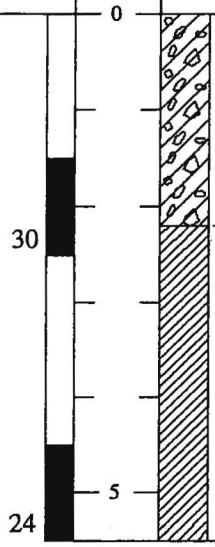
KLEINFELDER	Job No. 34674	SITE VICINITY MAP	PLATE

Tests	(pcf)	(%)	(feet)		
					FINISH DATE: **10-24-03**
				0	GRAY SILTY SANDY GRAVEL (GM)
					RED BROWN GRAVELLY SANDY CLAY (CL), very stiff to hard, dry, slightly porous
	109	7.6	34		
					Becoming moist at 4'
					Gravel from 6.5' to 7.5'
				5	
			20		
			27		
				10	
					RED BROWN CLAYEY SANDY GRAVEL (GC), dense to very dense, moist
			36/9"		
					BOTTOM OF BORING 14.25 FEET
					No Free Water Encountered

Tests	(pcf)	(%)	(feet)			
						FINISH DATE: **10-24-03**
					0	GRAY SILTY SANDY GRAVEL (GM)
				53		RED BROWN SANDY GRAVELLY CLAY (CL), very hard, dry
	115	15.3		8	5	Becoming stiff and moist at 4 feet Gravel from 6' to 7'
						MOTTLED RED BROWN AND YELLOW BROWN CLAY SAND (CL), stiff, moist Gravel from 8.5' to 10.5'
				23	10	
						RED BROWN SANDY CLAYEY GRAVEL (GC), very dense, moist, gravels up to 2"
				41/9"		BOTTOM OF BORING 12.75 FEET No Free Water Encountered

Tests	(pcf)	(%)	(feet)	

FINISH DATE: **10-24-03**



GRAY CLAYEY SANDY GRAVEL (GC), dense, moist

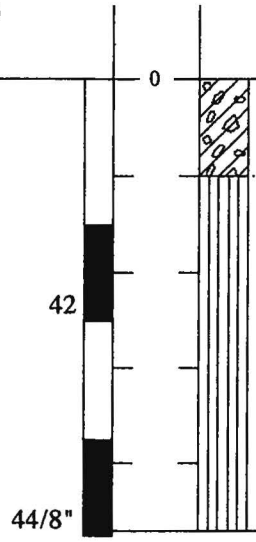
RED BROWN SANDY CLAY WITH GRAVEL (CL), very stiff, moist

LL=33
PI=14

BOTTOM OF BORING 5.5 FEET
No Free Water Encountered

Tests	(pcf)	(%)	(feet)	

FINISH DATE: **10-24-03**



GRAY CLAYEY SANDY GRAVEL (GC)

RED BROWN GRAVELLY SILTY CLAY (CL-ML), hard moist

LL=21
PI=5

BOTTOM OF BORING 4.75 FEET
No Free Water Encountered

Tests	(pcf)	(%)	(feet)	
				FINISH DATE: **10-24-03**
			0	GRAY CLAYEY SANDY GRAVEL (GC)
				YELLOW BROWN SANDY CLAY GRAVEL (CH), very hard, dry, porous
			59	
TxUU 8410(500)	112	17.0		
			42/8" 5	
			55	
				BOTTOM OF BORING 8 FEET
				No Free Water Encountered

Tests	(pcf)	(%)	(feet)		
				0	GRAY CLAYEY SANDY GRAVEL (GC)
					RED BROWN CLAYEY SAND WITH GRAVEL (SC), medium stiff, moist
TxUU 772(500)	112	15.5	6		
				5	RED BROWN SANDY SILTY GRAVEL (GC), dense, moist
			42/9"		
				10	
			41		BOTTOM OF BORING 10.5 FEET No Free Water Encountered

FINISH DATE: **10-24-03**

COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POOORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAYMIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

PS	Percent Saturation			
SG	Specific Gravity		Shear Strength, psf / Confining Pressure, psf	
Consol	Consolidation	Tx	2630 (240)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	Tx sat	2100 (575)	Unconsolidated Undrained Triaxial, saturated prior to test
PL	Plastic Limit (in %)	DS	3740 (960)	Consolidated Drained Direct Shear
PI	Plasticity Index	FVS	1320	Field Vane Shear
TS	Total Saturation Moisture Content	UC	4200	Unconfined Compression
SA	Sieve Analysis	LVS	500	Laboratory Vane Shear
■	Sample	C	Concrete Compressive Strength	
⊠	Bulk Sample	PE	Petrographic Examination	
◥	Standard Penetration Test	Perm	Permeability	
□	Sample Attempt with No Recovery	SE	Sand Equivalent	

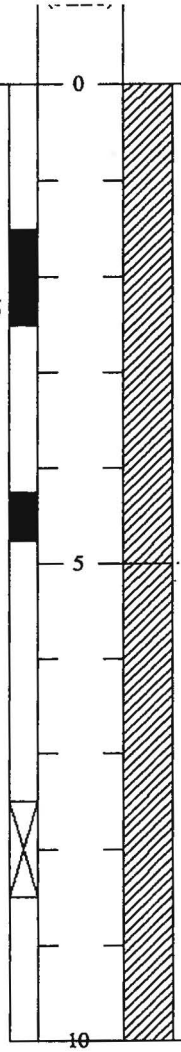
KEY TO TEST DATA

Tests	(pcf)	(%)	(feet)		
				0	YELLOW BROWN CLAYEY SANDY GRAVEL (GC), dense, dry
		107	11.1	29	RED BROWN CLAYEY SAND WITH GRAVEL (SC), very stiff, dry, contains brick fragments with black staining
LL=29 PI=9				22	
				5	Grinding on large gravel at 5 feet
				33	Gravels up to 2" at 8 feet
				10	
				37	BOTTOM OF BORING 12.5 FEET No Free Water Encountered

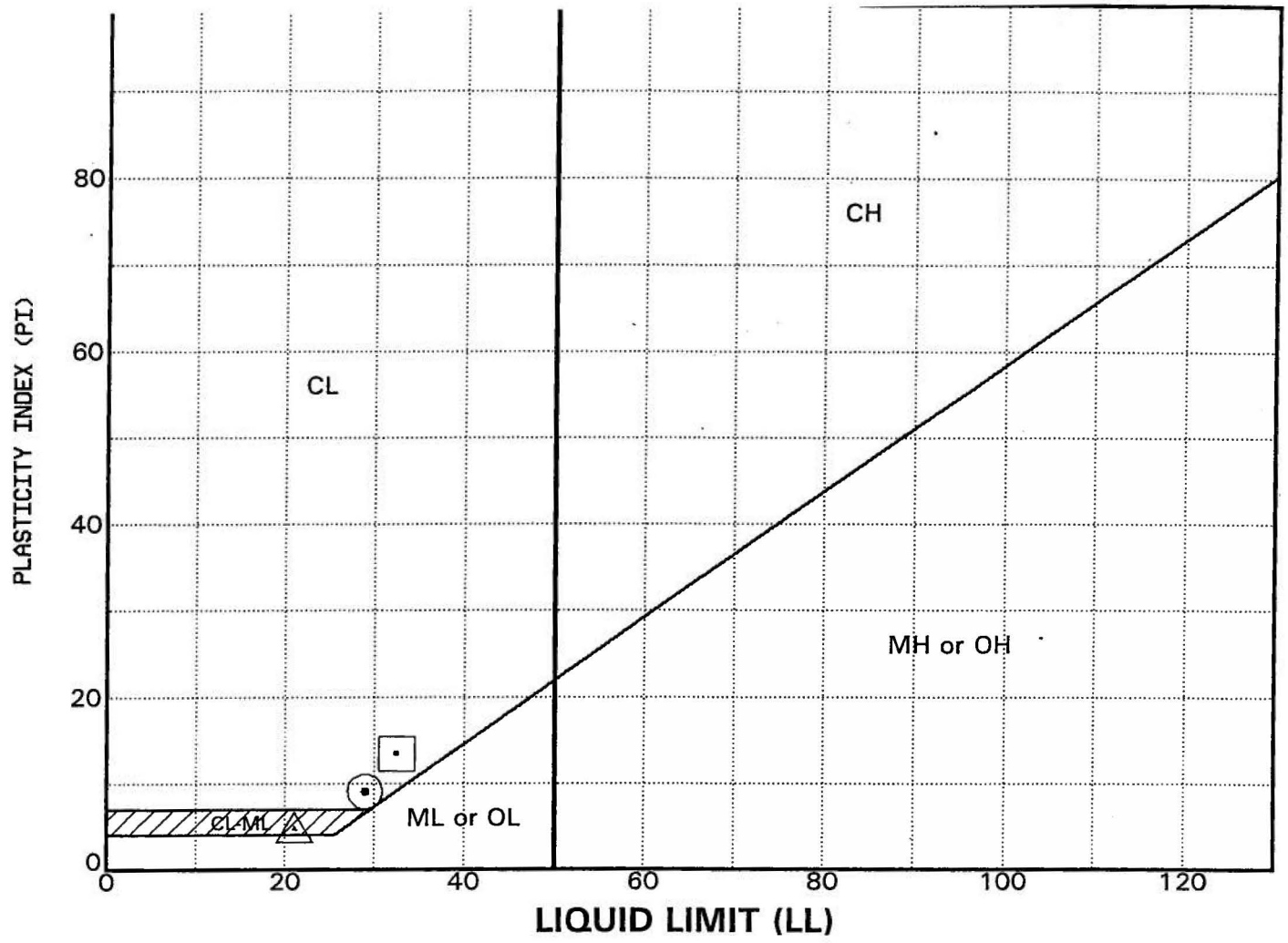
FINISH DATE: **10-24-03**

Tests	(pcf)	(%)	(feet)		

FINISH DATE: **10-24-03**

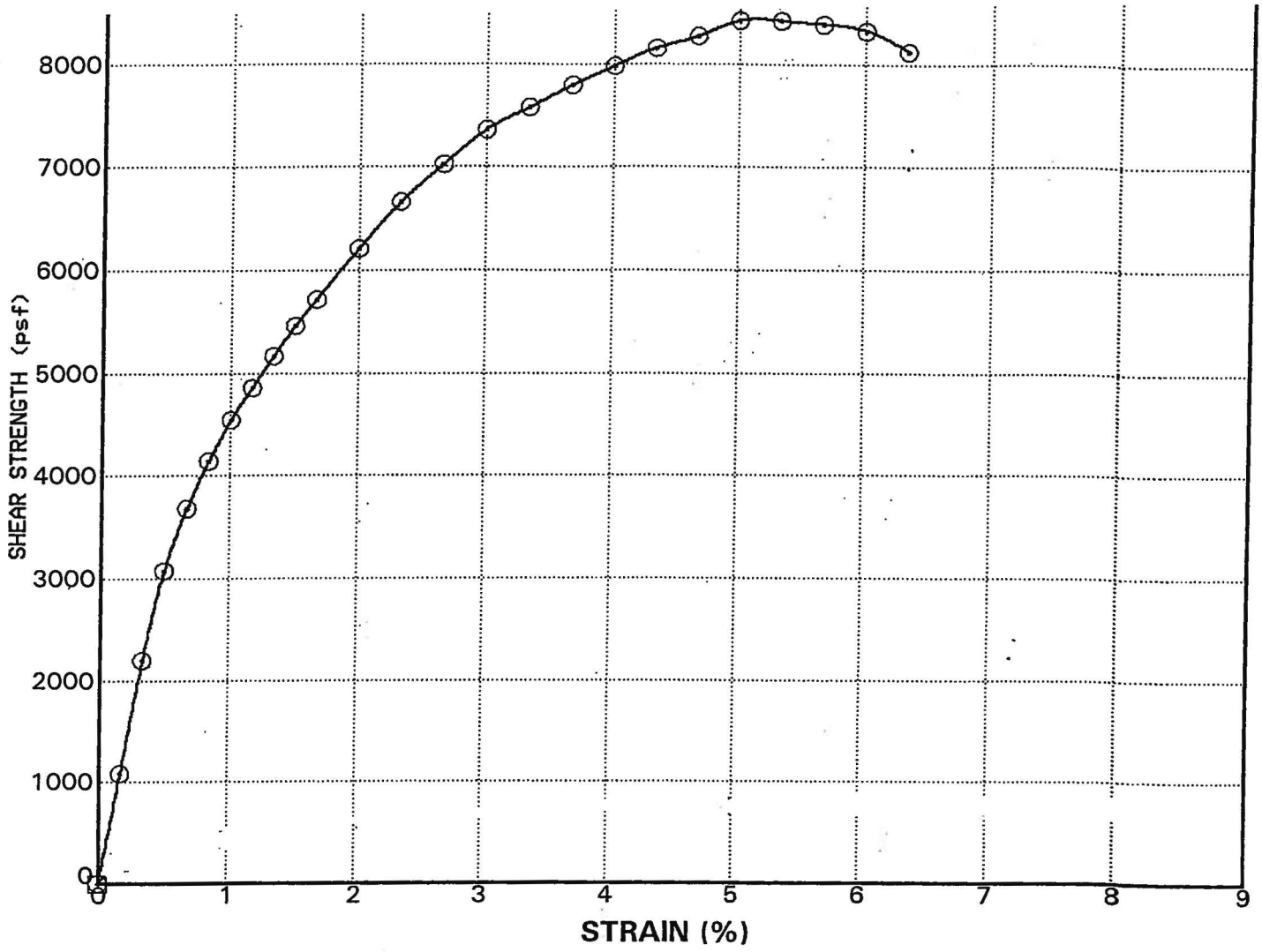


		97	8.0		RED BROWN GRAVELLY SANDY CLAY (CL), very stiff, dry, slightly porous
					LARGE GRAVEL FROM 5'+ 0.6' and from 7.5' to 8.5'
					Grinding @ 7.5' on large gravels
					BOTTOM OF BORING 10.0 FEET No Free Water Encountered



SAMPLE SOURCE	CLASSIFICATION	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	% PASSING #200 SIEVE
⊙ B-1 @ 3.5'	Brown Clayey Sand W/Gravel (SC)	29	20	9	
⊡ B-5 @ 4.5'	Red Brown Sandy Lean Clay (CL)	33	19	14	
△ B-6 @ 1.5'	Brown Sandy Silty Clay (CL-ML)	21	16	5	

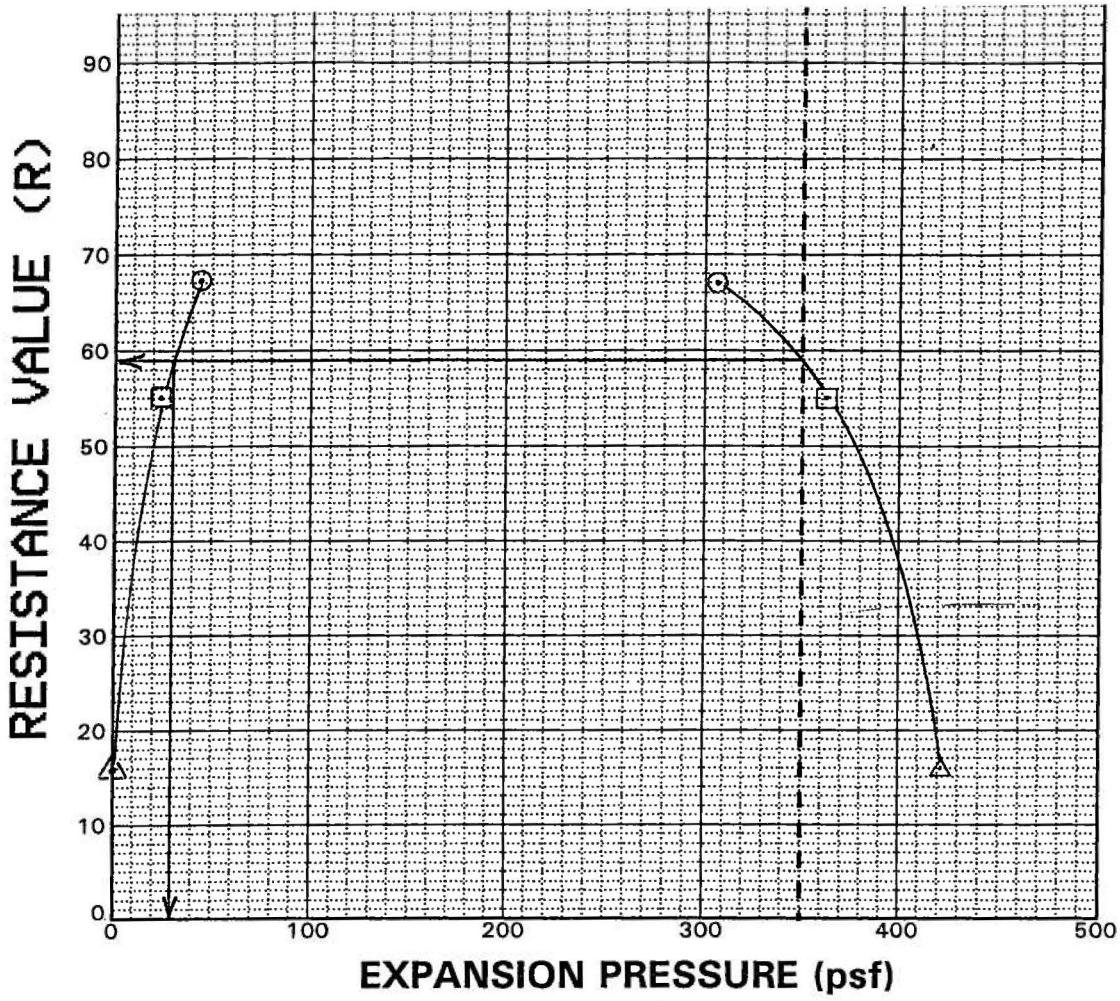
KLEINFELDER | Job No. 24674 | PLASTICITY CHART | PLATE



Sample Source	Classification	Type of Test	Confinement Pressure (psf)	Ultimate Strength (psf)	Strain (%)	Dry Density (pcf)	Moisture Content (%)
⊙ B-7 @ 4.3'	Brown Sandy Fat Clay (CH)	TX/UU	500	8410	5	112	17.0

UC = Unconfined Compression

TX/UU = Unconsolidated Undrained Triaxial

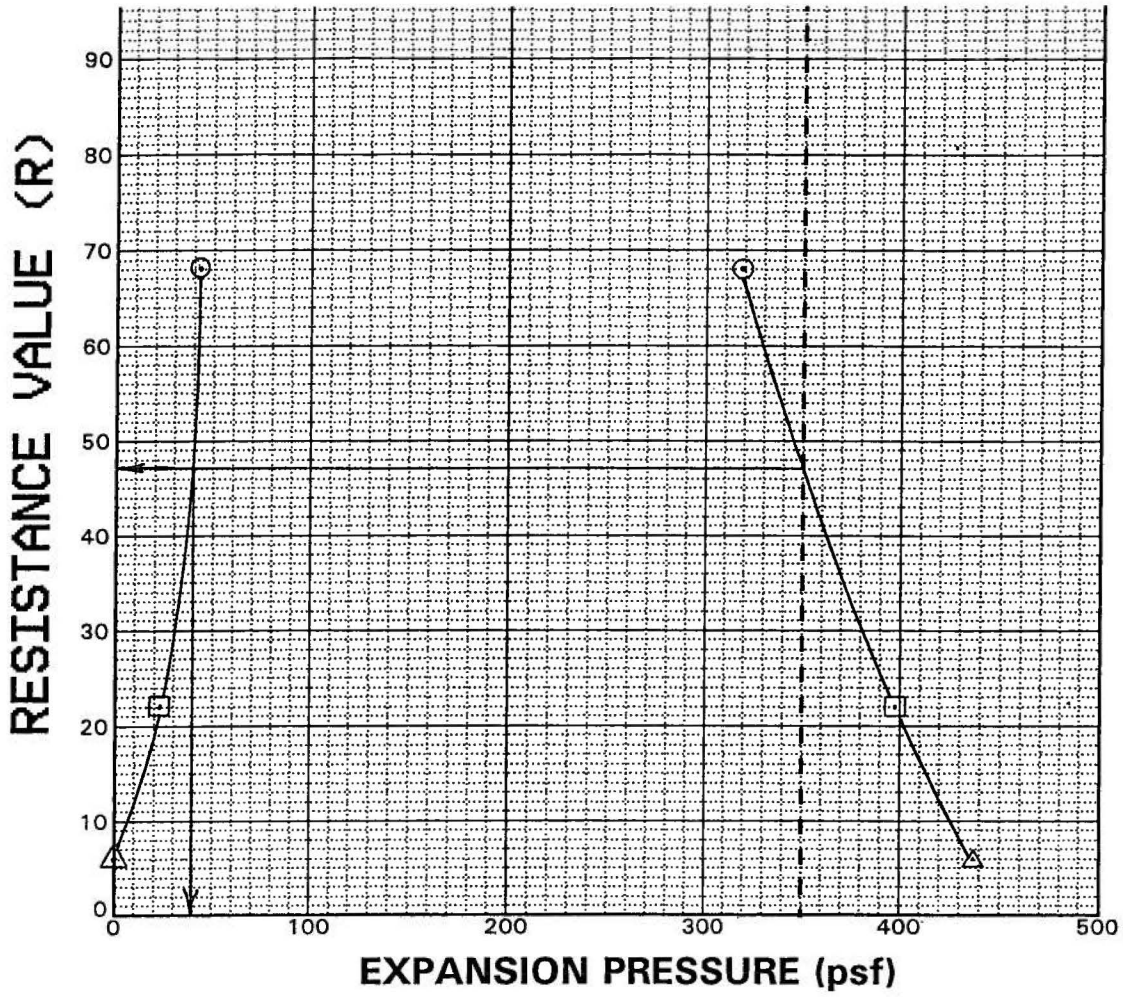


SPECIMEN NO.	⊙	⊡	△
MOISTURE CONTENT (%)	8.4	9.5	10.3
DRY DENSITY (PCF)	129	127	127
EXUDATION PRESSURE (PSI)	388	276	157
EXPANSION PRESSURE (PSF)	43	22	0
RESISTANCE VALUE (R)	67	55	16

SAMPLE SOURCE	CLASSIFICATION	SAND EQUIVALENT	EXPANSION PRESSURE	R-VALUE
BULK A @ 1.00	Brown Clayey Sand W/Gravel (SC)		30	59

ASTM D 2844, Cal Test 301

KLEINFELDER | RESISTANCE VALUE TEST DATA | PLATE

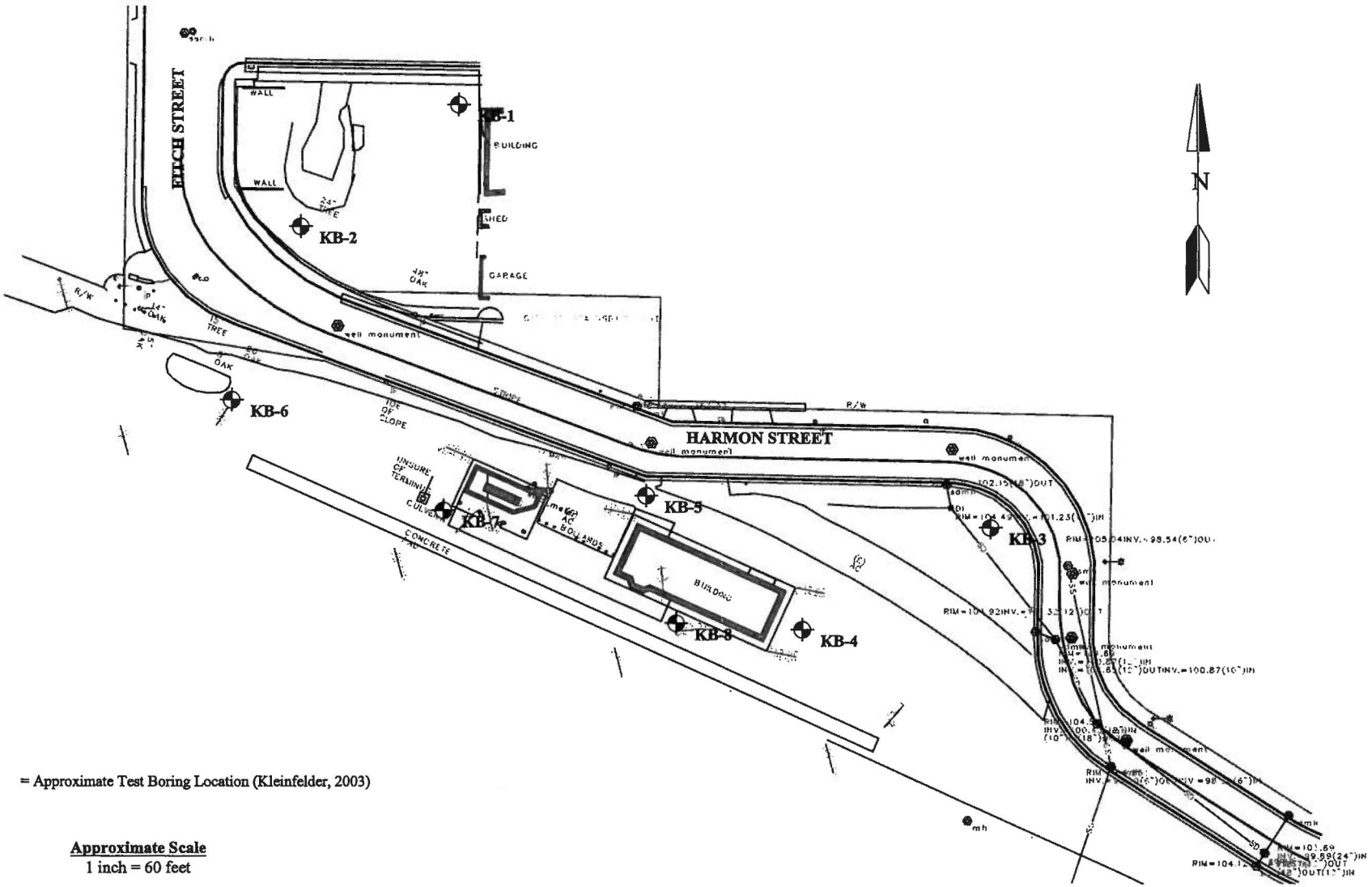


SPECIMEN NO.	⊙	⊡	△
MOISTURE CONTENT (%)	7.4	8.1	8.7
DRY DENSITY (PCF)	139	138	135
EXUDATION PRESSURE (PSI)	363	205	126
EXPANSION PRESSURE (PSF)	43	22	0
RESISTANCE VALUE (R)	68	22	6

SAMPLE SOURCE	CLASSIFICATION	SAND EQUIVALENT	EXPANSION PRESSURE	R-VALUE
BULK B @ 1.00	Brown Clayey Sand W/Gravel (SC)		40	47

ASTM D 2844, Cal Test 301

[redacted] | RESISTANCE VALUE TEST DATA | PLATE

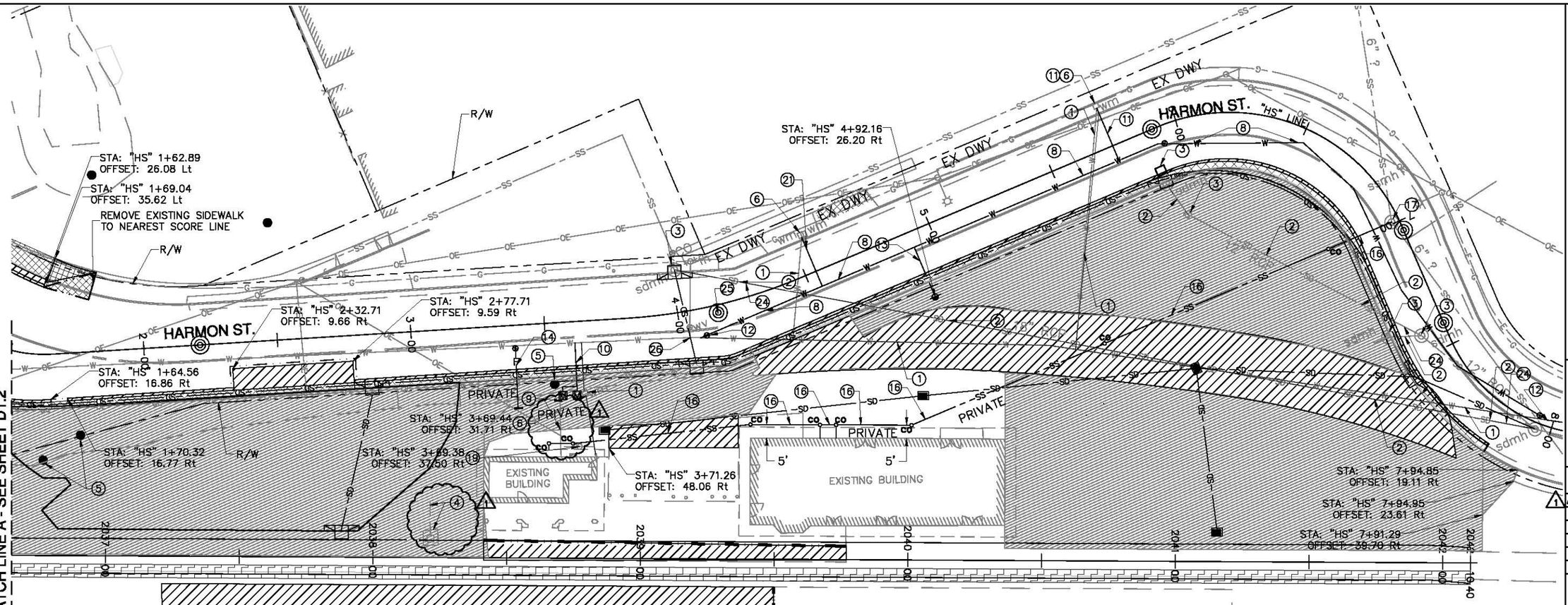


KB-1 = Approximate Test Boring Location (Kleinfelder, 2003)

Approximate Scale
1 inch = 60 feet

Base provided by DKS Associates.

KLEINFELDER Geotechnical, Materials and Environmental Engineering	Job No. 34674 Date: JAN 2004	**SITE AND BORING LOCATION PLAN** **HEALDSBURG INTERMODEL** **HARMON STREET** **HEALDSBURG, CALIFORNIA**	PLATE **2**



DEMOLITION AND UTILITY NOTES

1. ABANDON EXISTING WATER MAIN AND SERVICES PER COH SPECIFICATIONS AND PLUG ABANDONED PIPE END PER DETAIL 4/CD1.3
2. ABANDON EXISTING RCP STORM DRAIN PIPE PER COH SPECIFICATIONS AND PLUG END OF PIPE PER DETAIL 4/CD1.3
3. DEMOLISH AND REMOVE EXISTING INLET OR MANHOLE. PROTECT IN PLACE.
4. ~~REMOVE~~ PCC STRUCTURE AND LATERALS. MAINTAIN SEWER CONNECTION TO BUILDINGS. 1
5. REMOVE EXISTING TREE (TRUNK DIAMETER VARIES) AND ROOTS TO A DEPTH OF 2-FEET BELOW PROPOSED SUBGRADE.
6. REMOVE AND SALVAGE EXISTING WATER METER TO COH CORP YARD. LABEL SERVICE ADDRESS ON EACH METER.
7. TRIM TREE LIMBS UP TO PROVIDE ADEQUATE SIGHT DISTANCE AND CLEARANCE ABOVE PATHWAY PER CITY ARBORIST DIRECTION.
8. FURNISH AND INSTALL 8-INCH PVC C900 CLASS 150 WATER LINE PER COH SPECIFICATIONS.
9. FURNISH AND INSTALL PRESSURE REDUCER BACKFLOW ASSEMBLY PER COH WL-05. RECONNECT TO EXISTING WATER FEED SERVING BUILDING. 1
10. FURNISH AND INSTALL NEW 2" HDPE WATER SERVICE WITH MANIFOLD FOR TWO NEW METERS AND ITRONS TO EXISTING LIVE WATER MAIN PER COH DETAIL WL-04. PLACE METERS IN ACCORDANCE WITH WL-01. STAMP "IRR" AND SITE ADDRESS NUMBER ON CONCRETE COLLAR AT METERS.
11. INSTALL HDPE 1-1/2" WATER SERVICE PER COH DETAIL WL01 WITH NEW WATER METER & ITRON.
12. TIE IN NEW WATER MAIN TO EXISTING WATER MAIN PER COH SPECIFICATIONS. SEE DETAIL 9/CD 1.1.
13. INSTALL 6-INCH LINE AND FIRE HYDRANT ASSEMBLY FOR COMMERCIAL AREA PER COH DETAIL WL11.
14. FURNISH AND INSTALL NEW 4" FIRE SERVICE PER COH DETAIL WL-06. FIRE SERVICE TO BE CAPPED BEHIND BACK OF SIDEWALK FOR FUTURE BACKFLOW ASSEMBLY INSTALLATION.
15. RESERVED
16. INSTALL 6" PVC SDR 26 SANITARY SEWER LINE
17. CONSTRUCT NEW SEWER LINE INTO EXISTING SANITARY SEWER MH.
18. REMOVE AND SALVAGE EXISTING SWITCH STAND AND ALL RELATED MECHANICAL EQUIPMENT.
19. REMOVE EXISTING UTILITY POLE.
20. TRACK REMOVAL INCLUDES REMOVAL OF TRACK, TIES, SWITCHING GEAR. BALLAST MAY BE USED FOR SUBBASE FOR TRAIL. RAIL TO BE SALVAGED TO SMART CORP YARD. RESTORE MAINLINE RAIL TO EXISTING TIES IN PLACE OF THE FROG AND RAILS.
21. INSTALL NEW 2" HDPE WATER SERVICE WITH MANIFOLD FOR TWO METERS TO EXISTING LIVE WATER MAIN PER COH DETAIL WL-04 WITH NEW WATER METERS AND ITRONS.
22. PROTECT EXISTING TREE.
23. REMOVE ABANDONED WATER SERVICE FROM CITY RIGHT OF WAY. CLOSE CORP STOP AND CAP REMAINING PIPE.
24. REMOVE ABANDONED STORM DRAINAGE FACILITIES FROM CITY RIGHT OF WAY. CAP REMAINING PIPE WITH PCC CONCRETE PER DETAIL 4/CD1.3
25. RESET EXISTING CITY MONUMENT SEE SPECIAL PROVISIONS.
26. RELOCATE EXISTING WATER MAIN USING LIKE KIND MATERIAL AND CITY STANDARD BEDDING AND BACKFILL. SEE DP1.1, DP1.2 AND DP1.3.

BID DOCUMENT
NOT FOR CONSTRUCTION

LEGEND

- REMOVE EXISTING ASPHALT CONCRETE OR PCC SLAB, AND BASE ROCK TO PROPOSED SUBGRADE
- REMOVE EXISTING SIDEWALK, CURB AND GUTTER
- CLEAR GRUB AND REMOVE TOPSOIL TO SUBGRADE. DEPTH VARIES, SEE TYPICAL SECTIONS
- REMOVE AND SALVAGE RAILROAD RAILS. REMOVE TIES AND APPURTENANCES. SEE NOTE 20
- W — EXISTING WATER MAIN (ASBESTOS CEMENT)
- W — NEW WATER MAIN (PVC C900 – 150)
- OFH — EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- 106 — EX. CONTOUR
- EX. STREET NAME SIGN (PROTECT OR REMOVE AND RESET)
- SS — EXISTING SANITARY SEWER LINE
- SS — NEW SANITARY SEWER LINE – PVC SCHEDULE SDR 26
- F — NEW FIRE SERVICE – PVC C900–150
- EXISTING CITY MONUMENT (PROTECT IN PLACE)
- SD — EXISTING STORM DRAIN LINE
- SD — NEW STORM DRAIN LINE – SEE CONSTRUCTION NOTES
- CO — SANITARY SEWER CLEANOUT PER CITY OF HEALDSBURG DETAILS SS01 AND SS03
- EXISTING TREE
- SAWCUT LINE
- NEW STORM FIELD DRAIN INLET SEE CALTRANS TYPE G1 DETAIL D73
- NEW STORM DRAIN CURB INLET PER COH SD-01
- W — W — NEW GATE VALVE AND HANDHOLE PER COH STDS.

GENERAL NOTES:

1. ALL WATER MAIN WORK SHALL INCLUDE CONCRETE THRUST BLOCKING IN ACCORDANCE WITH DETAIL WL08 AND AS DIRECTED BY ENGINEER.
2. LOCATION OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CONDUCT POTHOLE INVESTIGATION TO LOCATE ALL POTENTIAL CONFLICTS.
3. DISINFECT ALL DOMESTIC WATER SYSTEM IMPROVEMENTS PER CITY OF HEALDSBURG STANDARD SPECIFICATIONS.
4. MAINTAIN 10' MINIMUM HORIZONTAL SEPARATION BETWEEN NEW WATER MAIN AND ALL SANITARY SEWER LINES EXCEPT FOR PIPE CROSSINGS.
5. MAINTAIN LIVE WATER SERVICE TO EXISTING SERVICE TAPS AT ALL TIMES EXCEPT AS DIRECTED BY ENGINEER.
6. 4" PVC C900 STUB FOR FUTURE BLDG SPRINKLER. BACKFLOW PREVENTER TO BE INSTALLED BY OTHERS IN FUTURE.
7. BEFORE CONNECTING NEW SANITARY SEWER TO PUBLIC SYSTEM, TEST NEW SYSTEM FOR LEAKAGE (I.E. AIR TEST LINES AND WATER TEST MANHOLES) PER COH STANDARD SPECIFICATIONS.
8. FURNISH AND INSTALL WET TAPS TO EXISTING LIVE WATER SYSTEM PER CITY OF HEALDSBURG STDS FOR ALL WATER MAIN CONNECTIONS 4-INCH DIAMETER OR LESS. .

GRAPHIC SCALE: 0 20 60 / 10 40
SCALE: 1"=20'

FOR REDUCED PLANS THE ORIGINAL SCALE IS IN INCHES 0 1" 2" 3"

D1.1

SonomaCountyTransit
THE COUNTYWIDE SYSTEM
DKS Associates
TRANSPORTATION SOLUTIONS
1970 BROADWAY, SUITE 740
OAKLAND, CALIFORNIA 94612
(510) 763-2061

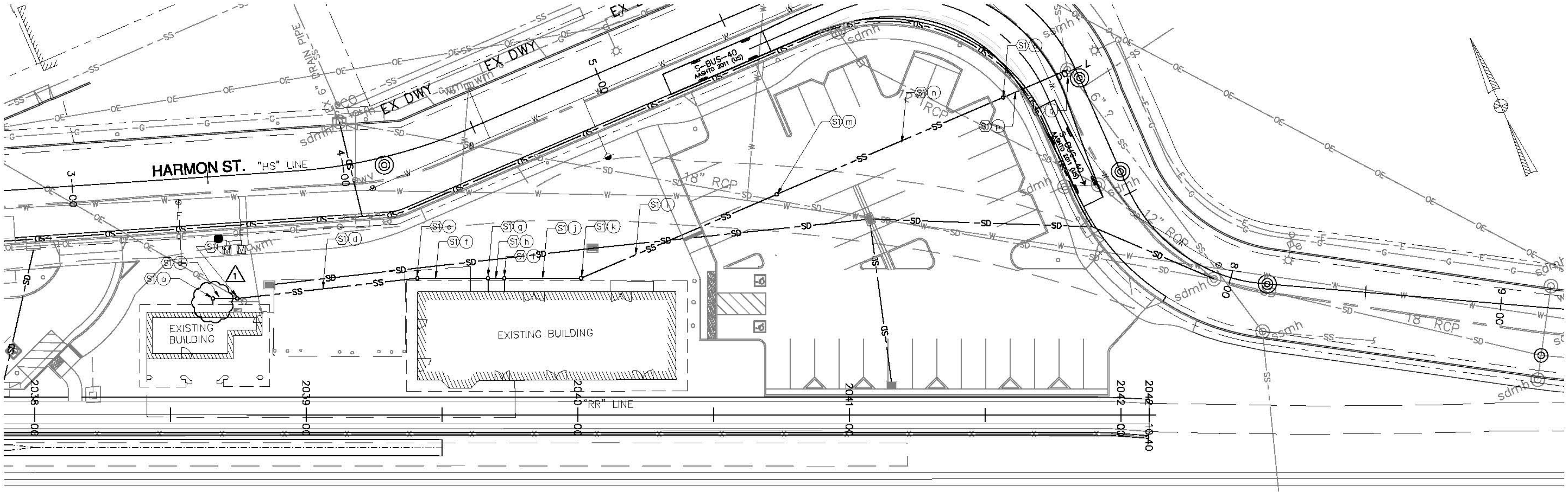
REGISTERED PROFESSIONAL ENGINEER
Thomas J. Krakow
No. C 48391
Exp. 6/30/16
CIVIL
STATE OF CALIFORNIA

REVISIONS	BY
1 ADDENDUM 1	TJK

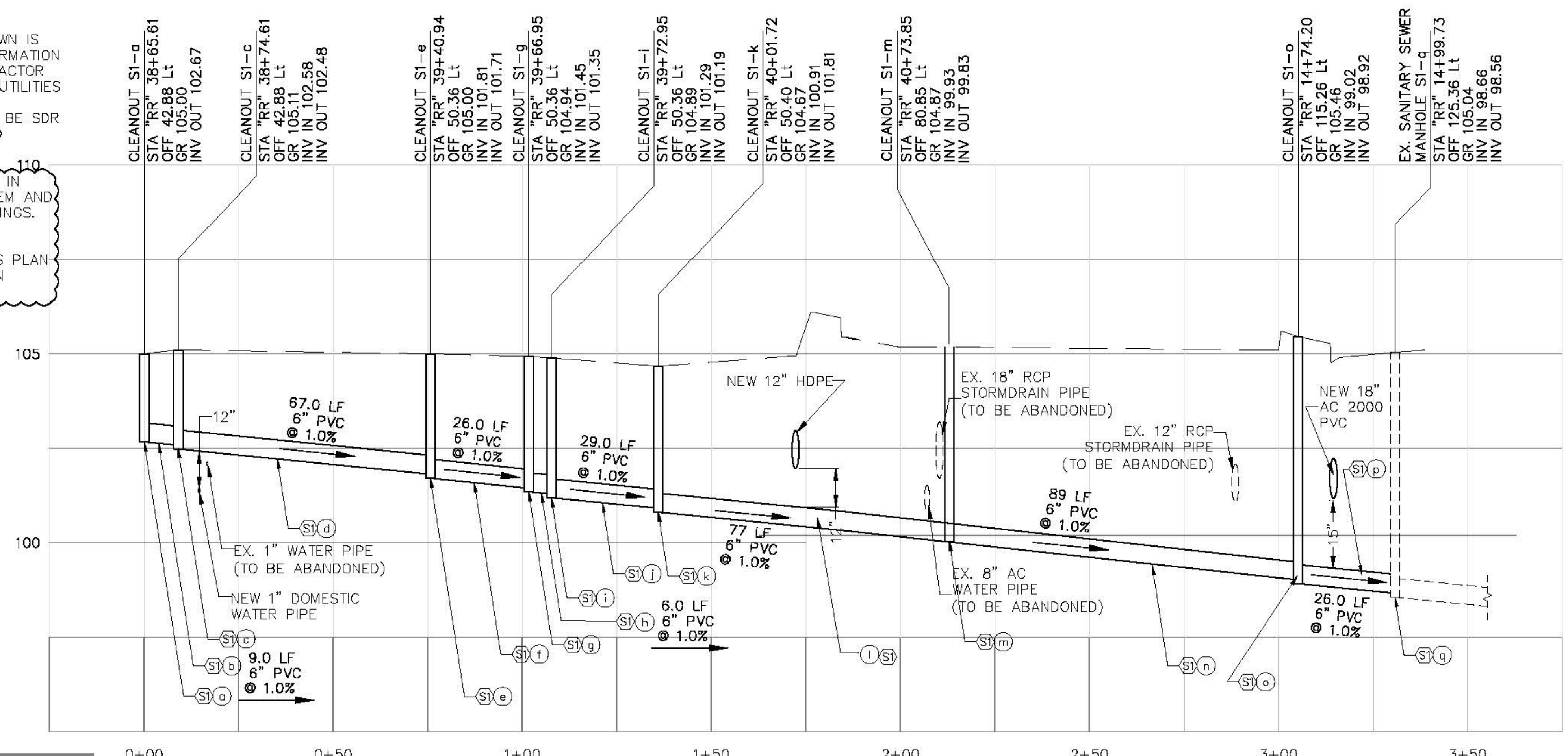
DEMOLITION AND UTILITY PLAN 1

HEALDSBURG INTERMODAL CENTER

DATE	3/27/15
DRAWN	FXC
CHECK	TJK
SHEET #	7
OF	31



NOTE:
1. UTILITY INFORMATION AS SHOWN IS BASED UPON AVAILABLE INFORMATION AND IS APPROXIMATE. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
2. SANITARY SEWER PIPE SHALL BE SDR 26. MINIMUM SEPARATION TO EXISTING UTILITIES SHALL BE 6-INCHES.
3. CONTRACTOR SHALL PROTECT IN PLACE EXISTING SEPTIC SYSTEM AND SEWER CONNECTION TO BUILDINGS. SEE ④ ON D1.1.
4. PROPOSED GRAVITY SEWER CONNECTIONS SHOWN ON THIS PLAN SHALL BE STUBBED TO WITHIN 2-FEET OF THE BUILDINGS.



SANITARY SEWER PROFILE #1

SCALE: HOR. 1"=20', VERT. 1"=2'

GRAPHIC SCALE: 0 10 20 40 60

SCALE: 1"=20'

FOR REDUCED PLANS THE ORIGINAL SCALE IS IN INCHES 0 1" 2" 3"

BID DOCUMENT
NOT FOR CONSTRUCTION

REVISIONS	BY
1 ADDENDUM 1	TJK

Thomas J. Krakow
No. C48381
Exp. 6/30/16
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STATE OF CALIFORNIA
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1970 BROADWAY, SUITE 740
OAKLAND, CALIFORNIA 94612
(510) 763-2061

SANITARY SEWER PROFILE

HEALDSBURG INTERMODAL CENTER

DATE	3/27/15
DRAWN	FXC
CHECK	TJK
SHEET #	12
OF	31

SP1.1

BID ITEM LIST (BID FORM)

PROJECT NAME: HEALDSBURG INTERMODAL FACILITY **Project No. : WO7018**

Bid Item	Ref	Bid Item Description	QTYy	Units	Unit Cost	Line Total
1	100-1	Mobilization	1	LS		
2	100-1.08	Water Pollution Control Plan (SWPPP)	1	LS		
3	100-1.11	Traffic Control System	1	LS		
4	100-1.12	Temporary Fence	2645	LF		
5	100-1.13	Railroad Siding Track Removal Switch Removal and Reconstruction	1	LS		
6	100-5	Clearing and Grubbing	1	LS		
7	100-5	Tree Removal	15	EA		
8	100-5	Protect Existing Trees	7	EA		
9	100-3	Demolition and Pipe Removal, Abandonment and Restoration	1	LS		
10	100-7	Earthwork Excavation	803	CY		
11	100-7	Select Fill	631	CY		
12	100-7	Trapezoidal Drainage Swale Bid Item 11	1100	LF		
13	100-7	V-Drainage Swale Bid Item 12	150	LF		
14	100-9	Remove and Salvage Water Meter	3	EA		
15	100-9	Domestic 1-1/2" Water Service	1	EA		
16	100-9	Domestic 2" Water Service	1	EA		
17	100-9	Depot 2" Dual Meter Water Service	1	EA		
18	100-9	8-inch PVC Water Main W/Connections	380	LF		
19	100-9	Fire Service Stub W/Cap	1	LS		
20	100-9	Sanitary Sewer Line W/Connections	335	LF		
21	100-10	Temporary/Permanent Erosion Control	1	LS		
22	100-11	Aggregate Base (Class 2)	830	CY		
23	100-11	Drain Rock	87	CY		
24	100-11	Rock Slope Protection	10.5	CY		
25	100-12	Hot Mix Asphalt	1071	TON		
26	100-13	Concrete Curb and Gutter	1093	LF		
27	100-13	Concrete Curb	988	LF		
28	100-13	Concrete Sidewalk City Standard	434	SF		
29	100-13	Concrete Sidewalk Thickened Edge	5673	SF		
30	100-13	On Site Concrete Valley Gutter	68	SF		
31	100-13	On Street Concrete Valley Gutter	500	SF		
32	100-13	PCC Bus Pad	450	SF		
33	100-13	Concrete Driveways	700	SF		
34	100-13	Concrete Curb Ramps	7	EA		
35	100-13.3	Wheel Stops	3	EA		
36	100-13.4	Dry Stack Retaining Wall	880	SF		
37	100-14	Furnish and Install Drainage - 15" A2000	55	LF		
38	100-14	Furnish and Install Drainage - 18" A2000	767	LF		
39	100-14	Furnish and Install Drainage - 12" CI III	25	LF		
40	100-14	Furnish and Install Drainage - 15" CI III	38	LF		
41	100-14	Furnish and Install Drainage - 18" CI IV	50	LF		
42	100-14	Furnish and Install Drainage - 6" DIPW 4lf 8" CMP	220	LF		
43	100-14	Furnish and Install Drainage - 10" DIP	54	LF		

44	100-14	Furnish and Install Drainage - 12" HDPE	363	LF		
45	100-14	Furnish and Install Drainage - 6" HDPE	88	LF		
46	100-14	Cathodic Protection	11	EA		
47	100-15	Furnish and Install Type G1 Inlet	5	EA		
48	100-15	Furnish and Install COH Curb Inlet	7	EA		
49	100-15	Construct Field Inlet Detail System	1	LS		
50	100-15.1	Construct Flared End Section with Special Grate	1	EA		
51	100-15	Construct New Storm Drain Manhole over existing pipe	1	EA		
52	100-15	Construct Roof Drain Leader Connection	3	EA		
53	100-15	Connect new 18" Pipe into existing manhole	1	EA		
54	100-16	Fire Hydrant	1	EA		
55	100-18	Chain Link Fence - 4' Feet Height	430	LF		
56	100-18	Chain Link Fence - 5' Feet Height	1205	LF		
57	100-18	Man Gates	2	EA		
58	111	Lighting and Electrical Systems	1	LS		
59	111-1.24	Remove Pavement Striping, Markers and Markings	1	LS		
60	111-1.24	Furnish and Install Raised Pavement Markers	1	LS		
61	111-1.25	Flashing Crosswalk Signage with Ped Push button	1	LS		
62	111-1.26	Thermoplastic Traffic Stripe and Markings	1	LS		
63	111-1.27	Paint Traffic Stripe	1	LS		
64	111-1.28	Parking Lot and Roadway Signs	21	EA		
65	112	Irrigation	1	LS		
66	113	Landscaping	1	LS		
67	114	Galvanized Steel Railing	1	LS		
68	114	Bollards	1	LS		
69	115	Site Furnishings	1	LS		
					Total	