SOIL AND GROUNDWATER MANAGEMENT PLAN
REVISION NO. 1

SYMPHONY PARK
[FORMERLY UNION PARK 61-ACRE SITE]
FORMER UNION PACIFIC RAILROAD
FUELING AND MAINTENANCE YARD
LAS VEGAS, NEVADA
FACILITY ID # H-000557
KLEINFELDER PROJECT NO.: 20154986.001A

February 14, 2017

Reviewed and Approved by:
Nevada Division of Environmental Protection
Nevada Brownfields Program
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701
Brownfields Contract #DEP14-008
Task #K01R-14-3

Prepared for:
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Prepared by:

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EM-2214 (expires 4/14/2017)

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state, and local statutes, regulations, and ordinances.

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1 INTRODUCTION

City Parkway V, Inc. (City Parkway V) is redeveloping the 61-acre site known as Symphony Park located just west of downtown Las Vegas. The site is bounded on the north and west by Grand Central Parkway, on the east by the Union Pacific railroad, and on the south by Bonneville Avenue (Figure 1). The City Parkway V is acting as the master developer. The Symphony Park vision is to develop a new skyline and destination for local residents with mutually supportive mixed uses and not dominated by one or two large uses. All of the infrastructure for the site will be developed by the City Parkway V.

During the course of normal operations, former Union Pacific Railroad (UPRR) operations on the site resulted in releases of total petroleum hydrocarbons (TPH), various organic and inorganic solvents, and metals. Some of the petroleum-impacted soil has been removed and replaced with clean fill material according to an agreement between the Nevada Division of Environmental Protection (NDEP) and UPRR. However, subsequent analysis of soil and groundwater samples has revealed the presence of various contaminants of potential concern. Therefore, in order to have a common procedure to manage the materials to be encountered for the various redevelopment activities, City Parkway V desires an overall soil and groundwater management plan (SGMP) for the entire 61 acres.

This SGMP provides project-specific guidelines for soil and groundwater management of the Symphony Park site. A developer(s) may add to this plan, as long as it is a more stringent addition, based on their risk tolerance and specific parcel conditions.

The initial SGMP, dated March 21, 2007 (Kleinfelder 2007a), was prepared through funding provided by the NDEP's Brownfields Program, under Contract #NDEP 06-015-03, Task K-15. This revised SGMP was prepared under Contract #DEP14-008-04, Task K01-14.

The purpose of this revision is to (1) update the SGMP and bring it into accord with NDEP's constituent-based Reportable Concentrations (RCs) and the US Environmental Protection Agency's (EPA) updated Regional Screening Levels (RSLs) and (2) further clarify other items as noted by City Parkway V and its consultants.

UPRR did not excavate and remediate soils across the entire 61-acre Symphony Park site. This SGMP applies specifically to those areas inside the UPRR remediation extents. For those areas outside the UPRR remediation extents, NDEP and City Parkway V have agreed that the soils are *legally clean* based on the No Further Action determination by NDEP following UPRR's remediation activity. However if, during the course of excavation in an area outside of the UPRR remediation extents, the Certified Environmental Manager (CEM) observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. Additionally, if impacted soils have been discovered by investigations after the No Further Action determination and prior to development, those impacted soils will be evaluated under the requirements of the SGMP. The CEM shall also inform City Parkway V when potentially impacted soils are observed.

A CEM shall be required to be present during development on the Symphony Park Site, regardless of the location of the development relative to the UPRR remediation extents. The UPRR remediation extents shown on Figure 4 and subsequent figures should be considered approximate. It is the developer's responsibility to define or verify the extents.

2 BACKGROUND

The Symphony Park site consists of 21 separate parcels within 61 acres (see Figure 2). Upon development, the site will have several right-of-ways extending in an approximate northwest-southeast and northeast-southwest alignment across the site, consisting of roads and walking promenades. The City Parkway V is acting as the master developer with the intent to develop a new skyline and destination for local residents. The development will have mutually supportive mixed uses and not be dominated by one or two large uses.

The past 70 years of UPRR operations on the site resulted in releases of TPHs, various organic and inorganic solvents, and metals during the course of normal operations. Some lead- and petroleum-impacted soil has been removed and replaced with clean fill material according to an agreement between NDEP and UPRR. Areas still remain that are potentially impacted by TPH, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), or metals.

2.1. SITE DESCRIPTION

The Symphony Park site consists of 61 acres of land that is partially developed. There are no surface features present that are related to previous rail road operations. Prior to 2007, the land was used in support of nearby construction activities at the World Market Center and the Molasky Corporate Center as construction parking, equipment staging, and construction material lay-down areas. Since the original SGMP was written in 2007, several parcels have been developed. Parcel A1 was developed as the Cleveland Clinic Lou Ruvo Center for Brain Health with Parcel A2 as an associated temporary paved parking area. Parcel H/I was developed as the Smith Center for the Performing Arts, the Discovery Children's Museum, and an associated parking garage. Parcel B has been developed as a paved temporary parking area. Parcels K, L, M4, N, O1, and O2 have been connected as a paved temporary parking area. Parcels M1, M2, and M3 have been developed as green space. The Phase I roadways (Symphony Park Avenue, West Clark Avenue, Promenade Place, and South City Parkway) have been placed and paved. The remaining parcels are undeveloped, and have been used as

construction parking, equipment staging, construction material lay-down areas, and stockpile storage containment areas during construction activities since 2007.

2.2. OPERATIONAL HISTORY

The 61 acres was part of UPRR's fueling and maintenance yard for a more than 70 year period, beginning in the early 1900s. The site contained locomotive fueling, service, repair, and cleaning areas, and was also used for material storage. The property was used for locomotive fueling and maintenance purposes from the 1940s until 1991. Figure 3 shows the areas of operation.

2.3. PREVIOUS INVESTIGATIONS AND REGULATORY INVOLVEMENT

The Diesel Shop Area consists mostly of parcels M3, F, and G but also extends into Parcels N, D, H/I, and E. The major contaminant in this area was TPH, with concentrations reported in soils ranging from 20 to 21,000 mg/kg. Volatile organic compounds (VOCs) were also detected, with chlorotoluene (up to 42,000 micrograms per kilogram (µg/kg), tetrachloroethylene (up to 1,200 µg/kg), toluene (up to 1,800 µg/kg) and 1.2-dichlorobenzene (up to 610 µg/kg) being the most commonly detected and total xylenes reported at 5,100 µg/kg. Soil samples for which Resource Conservation and Recovery Act (RCRA) 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) were found to be above regulatory levels are: non-hexavalent chromium (up to 352 mg/kg) and lead (up to 1,500 mg/kg). Benzene, toluene, xylenes, and ethylbenzene (BTEX) constituents were detected in groundwater, with benzene concentrations between 2 and 12 micrograms per liter (µg/L). Concentrations of vinyl chloride (up to 54 µg/L) and cis-1, 2-dichloroethylene (up to 140 µg/L) have also been reported in groundwater underlying the Diesel Shop Area (Dames & Moore, 1989).

The Fuel Storage Area consists of Parcels J, K, H/I, L and M. The major contaminant in this area is TPH, with concentrations reported in soils ranging from 23 to 60,000 mg/kg. Toluene was detected in soils up to 2,000 µg/kg. Soil samples were reported with concentrations above regulatory levels for RCRA 8 metals: non-hexavalent chromium (up to 1,060 mg/kg), and lead (up to 2,330 mg/kg). Benzene was reported in groundwater up to 1 µg/L and ethylbeneze was reported up to 2.0 µg/L (Dames & Moore, 1989).

The Wash Track Area consists of Parcels A1, A2, B, and J. The major contaminant of in this area is TPH, with concentrations reported from below laboratory detection limits to 3,330 mg/kg. Soil sample results were reported as above regulatory levels for RCRA 8 metals: cadmium (up to 21 mg/kg) and lead (up to 860 mg/kg) (Dames & Moore, 1989).

The East of Diesel Shop Area consists of Parcels O1, O2, and P/Q. The major contaminant in this area is TPH, with concentrations reported in soils ranging from 40 to 8,300 mg/kg. Soil sample results were reported as above regulatory levels for RCRA 8 metals: arsenic (up to 140 mg/kg), non-hexavalent chromium (up to 1,270 mg/kg) and lead (up to 967 mg/kg). BTEX constituents were reported in groundwater, with benzene at concentrations up to 14 μg/L and ethylbenzene up to 17.0 μg/L (Dames & Moore, 1989).

The Evaporation Pond Area consists of Parcels M1, M2, C, southwest corner of D, and the western end of M3. Within this area, TPH concentrations were reported in soils ranging from 60 to 7,000 mg/kg. Elevated concentrations of semi-volatile organic compounds (SVOCs) in soils were reported, including naphthalene up to 3,900 μg/kg. Non-hexavalent chromium concentrations in soil were reported up to 15 mg/kg. Benzene was reported in groundwater at concentrations up to 2.7 mg/L (Dames & Moore, 1989).

The Eastbound Fueling Area consists of Parcel P/Q. Within this area, TPH concentrations were reported in soils at concentrations ranging from 26 to 48,000 mg/kg. Soil samples were reported as above regulatory levels for RCRA 8 metals: arsenic (up to 169 mg/kg), non-hexavalent chromium (up to 1,290 mg/kg), and lead (up to 1,230 mg/kg). Benzene was reported in groundwater at concentrations up to 1.5 μg/L (Dames & Moore, 1989).

The Day Storage Tank Area consists of Parcel P/Q. Within this area, TPH concentrations were reported in soils ranging from below laboratory detection limits to 23,000 mg/kg. Benzene was reported in groundwater at concentrations up to 2.1 mg/L (Dames & Moore, 1989).

In 1992, remedial activities at the UPRR site began per a NDEP-approved Remedial Action Plan (RAP). Figure 4 shows these areas of remedial excavation. Union Pacific negotiated cleanup standards with the NDEP consisting of five components. These five components were:

1) Removing all TPH impacted soil exceeding 100 milligrams per kilogram (mg/kg), as determined by United States Environmental Protection Agency (EPA) test method 8015M from the ground surface to a depth of 2.5 feet bgs;

2) Removing all TPH impacted soil exceeding 10,000 mg/kg regardless of depth;

3) Responsibility for all TPH impacted soil exceeding 100 mg/kg which would be excavated during future site construction activities (such as the upcoming redevelopment projects);

4) Removing all lead-impacted soil in excess of 1,400 mg/kg; and

5) Recovering free phase TPH fuel product from the perched groundwater to a thickness of less than ½ inch in the formation.

Figure 5 shows the site's areas and depth to remaining TPH-impacted soils following UPRR remediation activities. Figure 6 shows the areas of remaining TPH concentrations in these areas. Additionally, it should be noted that UPRR remediated only the lighter petroleum hydrocarbons (C23 and lighter) so the presence of heavier petroleum hydrocarbons is possible inside the UPRR remediation extents. Existing treated fill on the Symphony Park site from the UPRR remediation activities is agreed by NDEP and City Parkway V to be *legally clean* based upon the No Further Action determination by NDEP in 1998. However, if indications of potentially impacted soils are observed by the CEM on-site during future development, the potentially impacted soils will be evaluated under the stipulations of this SGMP. Additionally, if impacted soils have been discovered by investigations after the No Further Action determination and prior to development, those impacted soils will be evaluated under the requirements of the SGMP.

A final closure report prepared in 1997 indicated that the requirements of the remedial action plan had been achieved. The lead-impacted soils were removed by excavation and transported offsite to an authorized disposal facility. Approximately 12,400 tons of lead-impacted soils were removed from the Wash Track Area. The TPH-impacted soils (as defined by the RAP) occurring at the targeted areas were removed by excavation and thermally treated onsite. Following treatment, the thermally treated soils were reused as on-site excavation backfill. According to the closure reports, approximately 26,000 tons of TPH-impacted soil were

removed from the Eastbound Fueling Area; approximately 13,500 tons from the Day Storage Tank Area; approximately 25,500 tons from the Diesel Shop Area; approximately 103,000 tons from the Fuel Storage Area; approximately 16,000 tons from the Wash Track; and approximately 49,000 tons from the Evaporation Pond Area. A groundwater recovery system was installed east of the Diesel Shop Area and at the Eastbound Fueling Area. These groundwater recovery systems consist of interceptor trenches that pumped total fluids (groundwater and product) through an oil/water separator to recover the free product. The water was discharged to city drains under permit.

According to results of the on-site groundwater monitoring wells in December 2000, fuel product thickness was measured in one well at the Fuel Storage area at 0.19 feet and in three wells at the Diesel Shop Area at thicknesses ranging from 0.04 to 0.53 feet. Fuel product was also measured in wells at the Eastbound Fueling Area. These wells were situated on the adjoining property to the northeast. In addition, low levels of TPH and VOCs (toluene, ethylbenzene, and xylene) were detected in the wells. The monitoring report indicated that no free product was recovered during the second half of 2000 from either the central or eastbound recovery systems. The report stated that very little recoverable petroleum product was left at the site and the recovery systems have since been shut-down.

2.4. CURRENT REMEDIATION AREA CLASSIFICATIONS

As shown on Figure 4, UPRR did not excavate and remediate soils across the entire 61-acre Symphony Park site. This SGMP applies specifically to those areas inside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean. However if, during the course of development in an area outside of the UPRR remediation extents, the developer's CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. A CEM shall be required to be present during excavation on the Symphony Park Site, regardless of the location of the development relative to the UPRR remediation extents and within areas containing treated undocumented fill. The UPRR remediation extents shown on Figure 4 and subsequent figures should be considered approximate. It is the developer's responsibility to define or verify the extents.

Additionally, it should be noted that UPRR remediated only the lighter petroleum hydrocarbons (C23 and lighter) so the presence of heavier petroleum hydrocarbons is possible inside the UPRR remediation extents. Existing treated fill on the Symphony Park site from the UPRR remediation activities is agreed by NDEP and City Parkway V to be *legally clean* based upon the No Further Action determination by NDEP in 1998. However, if indications of potentially impacted soils are observed by the CEM on-site during future excavation, the potentially impacted soils will be evaluated under the stipulations of this SGMP. Additionally, if impacted soils have been discovered by investigations after the No Further Action determination and prior to development, those impacted soils will be evaluated under the requirements of the SGMP.

2.5. ENVIRONMENTAL AND/OR HUMAN IMPACT

As part of the due diligence effort, each individual developer on the site is required to evaluate the environmental and human health impact to their project. Each evaluation is performed independently and addresses these impacts based on historical data, site specific data collection, building design and future intended land use. Structures that will be located on or near the areas found to have been most impacted from past releases may require mitigation measures.

As required under appropriate EPA and Occupational Safety and Health Administration (OSHA) regulations, worker health and safety during construction activities shall be addressed separately by the respective parcel contractors. Information provided in the historical documentation, this SGMP, and the sampling and analysis plan (SAP, Appendix A) shall be used to develop the proper precautions to be set forth related to possible hazardous material exposure.

3 ROLES AND RESPONSIBILITIES

The roles and responsibilities for the management of soils and groundwater are based upon the 2015 settlement between the City of Las Vegas and UPRR, in which the City of Las Vegas assumes all cost and risk for existing on-site contamination and relieved UPRR of their environmental obligations.

The roles and responsibilities for the Symphony Park project can be divided into four primary categories, which are 1) the regulatory agencies, 2) the current property owner (City Parkway V), 3) the Developer/General Contractor (various), and 4) the Certified Environmental Manager (CEM). These roles and responsibilities are summarized below.

3.1. REGULATORY AGENCIES

The regulatory agencies have various responsibilities per federal, state, and local regulations. The primary enforcement agency for this endeavor is the NDEP, with air quality enforcement falling under the jurisdiction of the Clark County Department of Air Quality (DAQ).

3.1.1. NDEP

The NDEP is the regulatory agency overseeing the project, and will be involved as appropriate. Unless NDEP specifies otherwise, all soil categorization will be performed by the CEM in accordance with this SGMP before transportation and disposal/treatment occurs. NDEP will review and approve this SGMP prior to its implementation. Soil categorization in accordance with this SGMP replaces NDEP approval for individual soil determinations.

3.1.2. CCDAQ

The DAQ will enforce the air quality regulations pertaining to fugitive dust and permitting and dust control. The Developer/General Contractor will be responsible for obtaining these permits and for permit compliance.

3.2. CITY PARKWAY V, INC.

City Parkway V will have overall coordination responsibility for the site as a whole and of the rights-of-ways. City Parkway V will designate area(s) for temporary stockpiling of soils and will arrange for disposal of contaminated, non-hazardous or RCRA hazardous soils.

3.3. THE DEVELOPER/GENERAL CONTRACTOR

Each Developer/General Contractor will have primary control of their respective sites, and will be responsible for their subcontractors and on-site personnel's adherence with this document. The Developer/General Contractor is responsible for all permits relating to their construction and facility activities such as air quality stationary source permits, dust permits, storm water pollution prevention permits, National Emissions Standards for Hazardous Air Pollutants (NESHAP) permits, and construction dewatering discharge permits or others as required.

The UPRR remediation extents shown on Figure 4 and subsequent figures should be considered approximate. It is the Developer/General Contractor's responsibility, with the assistance of the CEM, to define or verify the extents.

The Developer/General Contractor will be responsible for excavation of materials and placement of materials at a temporary stockpiling area(s), designated by City Parkway V. If a stockpiling area is not available, the Developer/General Contractor, assisted by the CEM, will be responsible for characterizing the soils prior to excavation by designing a three-dimensional sampling grid in accordance with the SAP. The CEM shall assist with precharacterization.

The CEM will sample the soils in accordance with the SAP and if the materials are considered useable on the site, the Developer/General Contractor will then be responsible for the material. If the material is considered contaminated, non-hazardous or RCRA hazardous, as defined in Section 4 – Soil and Waste Classifications, the material will be handled, transported, and disposed of by others.

The Developer/General Contractor will be required to assist the CEM with quantity estimates of all soil stockpiles that are not considered clean (as defined in Section 4) and with as-built documentation of the location and activity where these soils were generated (as defined in Sections 6 and 9).

3.4. CERTIFIED ENVIRONMENTAL MANAGER

The CEM has the authority to implement the SGMP in areas of known and unknown conditions. The CEM shall be present on-site during soil characterization, excavation, and removal activities. The CEM may be provided by City Parkway V or the Developer/General Contractor. CEM responsibilities for this project will include the following:

3.4.1. Permits

The CEM may assist with necessary environmental permits for construction of the projects that would be required by the Developer/General Contractor, or City Parkway V, for construction and facility activities, such as dust permits, storm water pollution prevention permits, NESHAP permits, New Source Performance Standard (NSPS) permits, and construction dewatering discharge permits.

3.4.2. Oversight

The CEM shall assist the Developer/General Contractor to define or verify the extents of the UPRR remediation. If potentially impacted soils are observed outside of the UPRR remediation area, the CEM will implement the requirements of this SGMP for those potentially impacted soils. The CEM shall provide direction to the Developer/General Contractor regarding soils inside the UPRR remediation extents and potentially impacted soils outside of the UPRR remediation extents.

The CEM shall provide direction to the Developer/General Contractor regarding the segregation and stockpiling of those soils classified in Section 4 of this document. If a stockpiling area is not available for excavated soils, the CEM shall assist the Developer/General Contractor in characterizing the soils prior to excavation by designing a three-dimensional sampling grid in accordance with the SAP, and performing sampling and characterization of that

three-dimensional sampling grid. The CEM shall implement the sampling and analysis plan (SAP), provided in Appendix A.

The CEM shall provide oversight of the testing, storage, handling, treatment, and transportation of any Hazardous Substances encountered during construction of the projects. The CEM shall coordinate with City Parkway V to provide onsite information. The CEM shall prepare for submittal the necessary environmental reports with NDEP. The CEM shall maintain an estimated volumetric accounting (as described in Sections 6 and 9 of this document) of all soil stockpiles that are not considered clean (as defined in Section 4). On a monthly basis, this accounting shall be sent to City Parkway V.

4 SOIL AND WASTE CLASSIFICATIONS

As shown on Figure 4, UPRR did not excavate and remediate soils across the entire 61-acre Symphony Park site. This SGMP applies specifically to those areas inside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP.

Additionally, it should be noted that UPRR remediated only the lighter petroleum hydrocarbons (C23 and lighter) so the presence of heavier petroleum hydrocarbons is possible inside the UPRR remediation extents and within areas containing treated undocumented fill.

Testing of soils will be conducted in accordance with the Sampling and Analysis Plan (SAP) and method detection limits shall be lower than the appropriate regulatory limit, defined below in Table 4.1. Based upon the analytical results, the soil will be classified as discussed in this Section.

Classifications of soil and wastes for regulatory compliance, as well as for tracking and payment purposes, are described in this section. The decision tree matrix for classifying the soil, as defined in this Section, is provided as Figure B-1 in Appendix B.

Under the initial SGMP (Kleinfelder 2007a), the contaminant action levels for contaminants other than TPH were based upon the EPA Region 9 Preliminary Remediation Goals (PRGs) (October 2004). Due to the overall future use of the site, the Residential PRGs for soil have been selected as appropriate. The PRGs were replaced in 2009 with Regional Screening Levels (RSLs) which were developed by the EPA by harmonizing the Region 9 PRGs with similar risk-based screening levels used by EPA Regions 3 and 6. NDEP's Draft Guidelines for Discovery Events provide Reportable Concentrations (RCs) based on the EPA RSLs. The EPA RSLs are currently updated twice per year.

Under the initial SGMP, hydrocarbon-impacted soils were characterized based on the concentration of TPH, with soils containing 100 mg/kg or more of TPH being considered *contaminated*. Under this revised SGMP, hydrocarbon-impacted soils will be characterized based on the concentration of the hydrocarbon constituents, such as benzene. The 100 mg/kg threshold for TPH may be applicable, however, for contaminated soils being exported from the 61-acre Symphony Park site for recycling and disposal or possible reuse.

It is understood that the NDEP is continuously evaluating and updating their RCs and that the EPA updates their RSLs twice per year. It is the responsibility of the user of this SGMP or CEM to ensure that the latest applicable RCs, RSLs, or other applicable standards are being used.

A risk assessment performed in 2007 determined a range of 1 to 15 mg/kg for background concentrations of arsenic, which was used to establish a site-specific action level for the Symphony Park site of 15 mg/kg (Converse, 2007a).

4.1. CLEAN

Soils that are tested and found to be below laboratory detection limits for the constituents of concern are considered as *clean*. The constituents of concern are: BTEX (benzene, toluene, ethylbenzene, and total xylenes), RCRA 8 Metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver), and other VOCs, SVOCs, and PCBs as appropriate based on individual project location. This material has no environmental reuse restrictions and, depending on its geotechnical suitability, can either be used on-site as backfill material, or transported off-site for reuse by others.

It should be noted that for off-site reuse by others, the receiving entity may have specific soil acceptance criteria that are not part of the Symphony Park suite of analyses. The Developer/General Contractor may be required to provide a copy of the analytical results and should verify each receiving entity's acceptance criteria.

4.2. LEGALLY CLEAN

Soils that are tested and found to contain constituents of concern at concentrations less than their respective regulatory limits are considered as *legally clean*. *Legally clean* soils may contain

one or more of the following: BTEX (benzene, toluene, ethylbenzene, and total xylenes), RCRA 8 Metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver), and other VOCs, SVOCs, and PCBs at less than their respective EPA RSL for residential soils or the site-specific action level in the case of arsenic. Table 4-1 provides these criteria.

TABLE 4-1

CONTAMINANT ACTION LEVELS

TARGET COMPOUND[1]	EPA RSL[2] (MG/KG)	SITE-SPECIFIC ACTION LEVEL (MG/KG)
Benzene	1.2[3]	None
Toluene	4,900[4]	None
Ethylbenzene	5.8[3]	None
Xylenes, total	580[4]	None
PCBs (Aroclor 1016)	4.1[4]	None
PCBs (Aroclor 1254)	0.24[3]	None
Arsenic	0.68[3]	15[5]
Barium	15,000[4]	None
Cadmium	71[4]	None
Chromium (total)	None	None
Lead	400[4]	None
Mercury	23[4]	None
Selenium	390[4]	None
Silver	390[4]	None

TABLE 4-1 Notes:

1) The individual compounds most likely to be present in the soil are presented.
2) Based on the overall future use of the project, the EPA Regional Screening Levels for Residential
   Soil are listed (May 2016). Where both are provided, the lesser of the carcinogenic and non-carcinogenic RSL is presented.
3) Carcinogenic RSL.
4) Non-carcinogenic RSL.
5) Kleinfelder 2007d, Document 80359/LVE7L139.

4.2.1. Legally Clean, On-Site Reuse

This material can be used on-site as backfill material.

4.2.2. Legally Clean, Off-Site Transport

If *legally clean* material will be taken off-site, it should be noted that the receiver may have specific acceptance criteria which may require additional testing and/or a project-specific risk assessment. The Developer/Site General Contractor will need to verify the acceptance criteria for off-site disposal or reuse.

4.3. CONTAMINATED, NON-HAZARDOUS

Soil that has been tested and found to contain constituents of concern at concentrations exceeding their respective regulatory limits (Table 4.1), but whose concentrations are less than their respective RCRA limits (Tables 4.2 and 4.3), are considered to be *contaminated, non-hazardous* soil.

If *contaminated, non-hazardous* soil will be reused on the 61-acre Symphony Park site, a use-specific risk assessment must be conducted for the soil prior to its placement. If a developer gains approval to reuse *contaminated, non-hazardous* soil on-site, CEM oversight is required during that reuse.

It should be noted that intended reuse sites may have requirements for accepting the soil which may require additional testing and/or a project specific risk assessment. If *contaminated, non-hazardous* soil will be transported off site for reuse, additional testing for Total Petroleum Hydrocarbons (TPH) may be required to determine reuse acceptability.

If *contaminated, non-hazardous* soil will be transported off site for either disposal or recycling, it must go to a facility capable of accepting the material. Within southern Nevada, *contaminated, non-hazardous* soil is typically accepted by the following facilities:

- Las Vegas Paving's petroleum impacted soils recycling facility, located in Clark County, Nevada
- Republic Services of Southern Nevada's APEX Regional Landfill, located in Clark County, Nevada
- US Ecology Nevada facility, located in Nye County, near Beatty, Nevada

City Parkway V will be notified to coordinate/arrange for the transport and disposal. The CEM will assist with the coordination, if requested.

If an analyte result exceeds its respective RSL or site-specific limit, it may be necessary to request soil sample(s) be additionally run for Toxicity Characteristic Leaching Procedure (TCLP) analyses, to verify if such soils may be classified as *RCRA hazardous*. *RCRA hazardous* soils are discussed in Section 4.4.

4.4. RCRA HAZARDOUS (FEDERALLY DESIGNATED WASTES)

As previously stated, if the result of an analyte exceeds its respective RSL or site-specific limit, it may be necessary to further evaluate the soil to determine whether it should be classified as *RCRA hazardous* instead of *contaminated, non-hazardous* prior to disposal off-site.

For metals, initial screening would be determined by use of the 20 times rule. For non-metals, this would be determined by comparing the concentration of the analyte in question to its respective TCLP limit, if established. Tables 4-2 and 4-3 provide these criteria for metals and non-metals, respectively. If initial laboratory analysis results in a concentration that exceeds the constituent's 20 times rule (metals) or TCLP limit (non-metals), then TCLP analysis must be performed.

Soil that has been tested by TCLP and found to contain constituents of concern at concentrations exceeding their respective RCRA TCLP limits, are considered to be *RCRA hazardous*. Soil that is reported to contain PCB is considered as *RCRA hazardous*. *RCRA* hazardous soils shall not be reused on the 61-acre Symphony Park site and must be exported for disposal. RCRA *hazardous* wastes require a hazardous waste transporter, a hazardous waste manifest, and disposal at a facility capable of accepting the material. Within southern Nevada, *RCRA hazardous* soil is typically accepted by US Ecology Nevada facility, located in Nye County, near Beatty, Nevada.

TABLE 4.2

RCRA TCLP CRITERIA – METALS

ANALYTE	TCLP LIMITS (MG/L)	20 TIMES TCLP CRITERIA (MG/KG)
Arsenic	5.0	100
Barium	100	2000
Cadmium	1.0	20
Chromium	5.0	100
Lead	5.0	100
Mercury	0.2	4.0
Selenium	1.0	20
Silver	5.0	100

TABLE 4.3

RCRA TCLP CRITERIA – NON-METALS

ANALYTE	TCLP LIMITS (MG/L)
Benzene	0.5
Carbon Tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
o-Creosol	200.0[1]
m-Creosol	200.0[1]
p-Creosol	200.0[1]
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichlorobenzene	0.5
1,1-Dichloroethylene	0.7
2,4-Dinitrotolune	0.13
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Tetrachloroethylene	0.7
Trichloroethylene	0.5
Vinyl Chloride	0.2

Note: [1] If o-, m-, and p-Creosol concentrations cannot be differentiated, the total Creosol concentration is used. The regulatory level of total creosol is 200 mg/L.

City Parkway V will be notified to coordinate/arrange the transport and disposal. The CEM will assist with the coordination, if requested.

4.5. IMPORT FILL MATERIAL

If import material is required, fill import will need to meet the definition of *clean* or *legally clean*, as defined in Sections 4.1 and 4.2. The Developer/General Contractor shall certify the material as *clean* or *legally clean*.

5 LOCATIONS OF KNOWN SOIL AND GROUNDWATER IMPACT

During development, the quantities and categories (refer to Section 4) of soil excavated will vary by parcel. While the locations of soil and groundwater impacts within the 61 acres comprising the Symphony Park property have been documented in previous investigations and remedial actions, the property will be developed by various Developer/General Contractors. Individually, the parcels' known soils and groundwater impacts, along with what is mapped as remaining, is summarized below. Figure 2 shows these parcel locations within the Symphony Park site. It should be noted that the requirements of this SGMP apply to future development of the Symphony Park site, including redevelopment and/or expansion of currently developed areas.

5.1. PARCEL A1

Parcel A1 is located in the southwestern-most corner of the property. This parcel is located in the former UPRR Wash Track Area, which was used for cleaning out railroad cars and later for storage of railroad cars and lumber. During UPRR's past remediation activities, soil with TPH concentrations up to 3,300 mg/kg was removed from this parcel to depths of 2.5 feet in the eastern portion of the parcel.

This parcel is currently developed as the Cleveland Clinic Lou Ruvo Center for Brain Health. During pre-excavation investigation, buried debris was encountered in the south and southeastern areas of the parcel, including arsenic/creosote treated wood, steel, and transite pipe. During the mass excavation and sewer trenching activities, the excavated soils were found to be impacted with arsenic concentrations ranging from 1.1 to 31 mg/kg, which was above then-current action level of 0.39 mg/kg. The site-specific action level for arsenic for the Symphony Park site was subsequently established as 15 mg/kg. Approximately 1,039 cubic yards of TPH-impacted soils were excavated, with concentrations up to 124 mg/kg, primarily in the C12-C35 range (Kleinfelder 2007b, 2007c).

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.2. PARCEL A2

Parcel A2 is located in the southwestern corner of the site, on the northern boundary of Parcel A1. This parcel is located in the former UPRR Wash Track Area, which was used for cleaning out railroad cars and later for storage of railroad cars and lumber. During UPRR's past remediation activities, soil with TPH concentrations up to 3,300 mg/kg were removed from this parcel to depths of 2.5 feet in the eastern portion of the parcel.

Future development plans for this parcel include Class A office or medical office building construction. This parcel is now developed as a temporary parking area for the Cleveland Clinic Lou Ruvo Center for Brain Health located on parcel A1. An underground power utility trench was excavated along the western boundary of the parcel, feeding to parcel A1. The excavated soils were found to be impacted with arsenic at a concentration of 2.9 mg/kg, which was above the then-current action level of 0.39 mg/kg. The site-specific action level for arsenic for the Symphony Park site was subsequently established as 15 mg/kg. TPH was found in the soil below the action limit of 100 mg/kg. Current known contaminants of concern on this parcel consist of TPH. Suspected or potential contaminants of concern consist of lead and arsenic. Figures 9 and 10 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPHs.

5.3. PARCEL B

Parcel B is located on the western side of the property, along the northern boundary of Parcel A2. This parcel is located in the former UPRR Wash Track Area, which was used for cleaning out railroad cars and later for storage of railroad cars and lumber. During UPRR's past remediation activities, soil with negligible concentrations of TPHs was removed from along the northern boundary of this parcel to depths of 2.5 feet.

Future development plans for this parcel include Class A office or medical office building construction. This parcel is now developed as a temporary parking area for the Smith Center for the Performing Arts. During mass grading and utility trenching for the parking lot, TPH- and metals-impacted soils were encountered from the ground surface to a depth of approximately

two feet over most of the parcel. Elevated concentrations of arsenic, chromium, and lead were encountered, and approximately 30 tons of soil was impacted with lead above RCRA levels and handled as RCRA hazardous material (Kleinfelder 2014).

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.4. PARCEL C

Parcel C is located on the northwestern side of the property, along the northern boundary of Parcels M1 and M2. This parcel is located in the former UPRR Evaporation Pond Area, which was used for waste water treatment and included two excavated evaporation ponds, a steel tank oil-water separator, and an equalization basin with skimmer. During UPRR's past remediation activities, soil with TPH concentrations up to 19,000 mg/kg was removed from this parcel to depths of 2.5 feet over most of the parcel. Soil with TPH concentrations up to 3,000 mg/kg was removed from this parcel to depths of 5 feet in the southwest corner of the parcel.

Future development plans for this parcel include residential construction. A human health risk assessment was performed in 2007 determined that the residual VOCs in the soil vapor do not pose an unacceptable health hazard under a future residential land use scenario involving construction of high rise residential housing units (Kleinfelder 2007e). Soil sampling results during this investigation included TPH up to 2,500 mg/kg, and VOCs and PAHs detected below their action limits. Sign footings were placed in the southwest corner of the parcel in 2011. Soils were excavated to depths of two to three feet, with TPH and metals concentrations determined to be below action limits. Current known contaminants of concern on this parcel consist of TPH. Suspected or potential contaminants of concern consist of associated VOCs and SVOCs. Figures 11 and 12 show soil depths to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.5. PARCEL D

Parcel D is located on the northwestern side of the property, along the northern boundary of Parcel C. Figure 2 shows this parcel's location within the Symphony Park site. Portions of this parcel are located in the former UPRR Evaporation Pond Area, which was used for waste water treatment and included two excavated evaporation ponds, a steel tank oil-water separator, and an equalization basin with skimmer; and in the former Diesel Shop Area, which was used for service, maintenance, and storage of diesel locomotives. During UPRR's past remediation activities, soil with TPH concentrations less than 100 mg/kg was removed from the southwestern corner of this parcel to depths of 2.5 feet.

Future development plans for this parcel include residential construction. A human health risk assessment was performed in 2007 determined that the residual VOCs in the soil vapor do not pose an unacceptable health hazard under a future residential land use scenario involving construction of high rise residential housing units (Kleinfelder 2007e). Soil sampling results during this investigation included TPH up to 2,500 mg/kg, and VOCs and PAHs detected below their action limits. Current known contaminants of concern on this parcel consist of TPH. Figures 13 and 14 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

The majority of Parcel D is outside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean based on the No Further Action determination by NDEP following UPRR's remediation activity. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. The CEM shall also inform City Parkway V when potentially impacted soils are observed.

5.6. PARCEL E

Parcel E is located on the northern side of the property, along the northeastern boundary of Parcel D. This Parcel is not located within any former UPRR operations areas, and no soil has been removed from this parcel during UPRR's past remediation activities.

Future development plans for this parcel include a sporting event arena or stadium. A limited site investigation was performed on this parcel in 2007 with soil samples collected from depths up to 24 feet (Terracon 2007). TPH was found at concentrations up to 18,000 mg/kg and TPH in groundwater exceeded the National Pollution Elimination Discharge Permit (NPDES) limit of 1 mg/L. The samples were not analyzed for metals. Sign footings were placed in the northwest corner of the parcel in 2011. Soils were excavated to depths of two to three feet, with TPH and metals concentrations determined to be below action limits.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

Parcel E is outside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean based on the No Further Action determination by NDEP following UPRR's remediation activity. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. The CEM shall also inform City Parkway V when potentially impacted soils are observed.

5.7. PARCEL F

Parcel F is located near the center of the property, on the southern boundary of Parcel E and the eastern boundary of Parcel D. This parcel is located in the former UPRR Diesel Shop Area, which was used for service, maintenance, and storage of diesel locomotives. During UPRR's past remediation activities, soil with TPH concentrations up to 21,000 mg/kg was removed from this parcel to depths of 7.5 feet on the southern end of the parcel and around the locations of former structures. Soil with TPH concentrations up to 1,100 mg/kg was removed from this parcel to depths of five feet along the southern boundary and between the locations of former structures on the parcel.

Future development plans for this parcel include residential construction. A human health risk assessment was performed in 2007 determined that the residual VOCs in the soil vapor do not pose an unacceptable health hazard under a future residential land use scenario involving construction of high rise residential housing units (Kleinfelder 2007e). Soil sampling results during this investigation included TPH up to 2,500 mg/kg, and VOCs and PAHs detected below their action limits. Current known contaminants of concern on this parcel consist of TPH. Suspected or potential contaminants of concern consist of VOCs, including chlorinated solvents. Figures 15 and 16 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

The northern portion of Parcel F is outside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean based on the No Further Action determination by NDEP following UPRR's remediation activity. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. The CEM shall also inform City Parkway V when potentially impacted soils are observed.

5.8. PARCEL G

Parcel G is located near the center of the property, on the eastern/northeastern boundaries of Parcels F and D and the northern boundary of Parcel M3. This parcel is located in the former UPRR Diesel Shop Area, which was used for service, maintenance, and storage of diesel locomotives. During UPRR's past remediation activities, soil with TPH concentrations up to 21,000 mg/kg was removed from this parcel to depths of 7.5 feet on the southern end of the parcel and around the locations of former structures. Soil with TPH concentrations up to 1,100 mg/kg was removed from this parcel to depths of five feet between the locations of former structures on the parcel.

Future development plans for this parcel include a hotel. A subsurface investigation was performed on this parcel in 2007, with TPH concentrations reported up to 2,027 mg/kg in soil and above the NPDES limit in groundwater (Western Technologies, Inc. 2007). Current known

contaminants of concern on this parcel consist of TPH. Arsenic was found at concentrations up to 5.2 mg/kg, which was above the then-current limit. The site-specific action level for arsenic for the Symphony Park site was subsequently established as 15 mg/kg. Suspected or potential contaminants of concern consist of VOCs, including chlorinated solvents. Figures 15 and 16 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.9. PARCEL H/I

Parcel H/I is located near the center of the property, on the southern boundary of Parcel M3. This parcel is located in the former UPRR Fuel Storage Area, which included the Cal-Nev pipeline terminal, four above-ground storage tanks (ASTs), a fuel car loading area, and a pump house with associated piping. Specifically, this parcel contains the former locations of the Cal-Nev pipeline terminal, two of the ASTs, and a portion of the fuel loading area. During UPRR's past remediation activities, soil with TPH concentrations up to 44,000 mg/kg was removed from this parcel to depths of five feet in the southeastern half of the parcel. Soil with TPH concentrations up to 14,000 mg/kg was removed from this parcel to depths of 7.5 feet along the western part of the southern boundary of the parcel. Soil with TPH concentrations up to 6,800 mg/kg was removed from this parcel to depths of 10 feet along the eastern part of the southern boundary of the parcel.

This parcel is now developed as The Smith Center for the Performing Arts and the Discovery Children's Museum. Pre-excavation sampling was performed in 2010 to depths between nine and 12 feet, with TPH concentrations up to 3,450 mg/kg (Kleinfelder 2010). One grid cell from a depth of three to six feet contained lead at a concentration of 840 mg/kg, Other RCRA 8 metals concentrations during the pre-excavation investigation were below action limits. Piers were drilled for the Discover Children's Museum in 2011, with TPH up to 66 mg/kg and metals below action limits (Kleinfelder 2011a).

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.10. PARCEL J

Parcel J is located on the southern border of the property, along the southern boundary of Parcels H/I and the eastern boundary of Parcels A1 and A2. This parcel is located in the former UPRR Fuel Storage Area, which included the Cal-Nev pipeline terminal, four above-ground storage tanks (ASTs), a fuel car loading area, and a pump house with associated piping. Specifically, this parcel contains the former locations of two of the ASTs, a portion of the fuel loading area, and the pumphouse. During UPRR's past remediation activities, soil with TPH concentrations up to 44,000 mg/kg was removed from this parcel to depths of 7.5 feet in the northern and eastern portions of the parcel.

Future development plans for this parcel include Class A office or medical office construction. A limited subsurface assessment in 2007 found TPH-impacted soil with concentrations in the north/central area of the parcel up to 1,000 mg/kg and concentrations in the eastern area of the parcel up to 10,000 mg/kg (Converse 2007b). VOCs and SVOCs were detected below RCs and RSLs, and metals were not analyzed. Sign footings were placed in the southwest corner of the parcel in 2011. Soils were excavated to depths of two to three feet, with TPH and metals concentrations determined to be below action limits. Figures 19 and 20 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Prior to monitoring well abandonment activities on this parcel, groundwater samples were collected and analyzed (Kleinfelder 2008a). TPH, VOCs and SVOCs were not detected, and metals and other inorganic constituents were below RCs.

The majority of Parcel J is outside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean based on the No Further Action determination by NDEP following UPRR's remediation activity. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the stipulations of this SGMP. The CEM shall also inform City Parkway V when potentially impacted soils are observed.

5.11. PARCEL K

Parcel K is located in the southeastern corner of the property, along the eastern boundary of Parcel J. This parcel is located in the former UPRR Fuel Storage Area, which included the Cal-Nev pipeline terminal, four above-ground storage tanks (ASTs), a fuel car loading area, and a pump house with associated piping. Specifically, this parcel contains the former locations of railroad siding tracks. During UPRR's past remediation activities, soil with TPH concentrations up to 380 mg/kg was removed from this parcel to depths of five feet in the northwestern quarter of the parcel.

Future development plans for this parcel include Class A office or medical office construction. This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A box culvert and temporary parking area were constructed on this parcel in 2011/2012, with TPH concentrations up to 120 mg/kg, and metals and VOCs reported below their action limits. Footings for a pedestrian bridge were placed between Parcels K and L in 2012. Pre-excavation sampling to a depth of 8 feet found TPH up to 2,000 mg/kg, and metals, VOCs, SVOCs, and PCBs were either below laboratory detection limits or below action limits. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs and SVOCs associated with diesel fuel. Figures 21 and 22 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Prior to monitoring well abandonment activities on this parcel, groundwater samples were collected and analyzed (Kleinfelder 2008a). TPH, VOCs and SVOCs were not detected, and metals and other inorganic constituents were below RCs.

5.12. PARCEL L

Parcel L is located on the southeastern border of the property, along the northern boundary of Parcel K and the eastern boundary of Parcels H/I. This parcel is located in the former UPRR Fuel Storage Area, which included the Cal-Nev pipeline terminal, four above-ground storage tanks (ASTs), a fuel car loading area, and a pump house with associated piping. Specifically, this parcel contains the former locations of railroad siding tracks. During UPRR's past remediation activities, soil with TPH concentrations up to 1,800 mg/kg was removed from this

parcel to depths of five feet over most of the parcel. Soil with concentrations up to 860 mg/kg was removed from depths of 10 feet in the northwest portion of the parcel.

Future development plans for this parcel include medical offices and a senior housing/independent living facility. This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A box culvert and temporary parking area were constructed on this parcel in 2011/2012, with TPH concentrations up to 690 mg/kg, and metals and VOCs reported below their action limits. A human health risk assessment in 2007, updated in 2012, determined that trichloroethene concentrations in soil vapor are at levels that do not require further investigation, remediation, or mitigation (Kleinfelder 2007f, 2012b). A pedestrian bridge was constructed in the southeastern corner of the parcel in 2012 (Kleinfelder 2012c). Pre-excavation sampling to a depth of 8 feet found TPH up to 2,000 mg/kg, and metals, VOCs, SVOCs, and PCBs were either below laboratory detection limits or below action limits. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs and SVOCs associated with diesel fuel. Figures 23 and 24 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.13. PARCEL M1

Parcel M1 is located on the northwestern side of the property, along the northern boundary of Parcel B, the southern boundary of Parcel C, and the western boundary of Parcel M2. This parcel is located in the former UPRR Evaporation Pond Area, which was used for waste water treatment and included two excavated evaporation ponds, a steel tank oil-water separator, and an equalization basin with skimmer. During UPRR's past remediation activities, soil with TPH concentrations up to 19,000 mg/kg was removed from this parcel to depths of 2.5 feet over most of the parcel. Soil with TPH concentrations up to 3,100 mg/kg was removed from this parcel to depths of 7.5 feet on the western side of the parcel.

This parcel is currently developed as green space. During development of the parcel, TPH-impacted soils were encountered with concentrations up to 450 mg/kg (Kleinfelder 2012a). Metals, VOCs, SVOCs and PCBs were not found to exceed their action limits.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.14. PARCEL M2

Parcel M2 is located on the northwestern side of the property, along the northern boundary of Parcel B, the southern boundary of Parcel C, and the eastern boundary of Parcel M1. This parcel is located in the former UPRR Evaporation Pond Area, which was used for waste water treatment and included two excavated evaporation ponds, a steel tank oil-water separator, and an equalization basin with skimmer. During UPRR's past remediation activities, soil with TPH concentrations up to 19,000 mg/kg was removed from this parcel to depths of 2.5 feet over most of the parcel.

This parcel is currently developed as green space. During development of the parcel, TPH-impacted soils were encountered with concentrations up to 18,500 mg/kg (Kleinfelder 2012a). Metals, VOCs, SVOCs and PCBs were not found to exceed their action limits.

Groundwater impacts on the site are known to be associated with past site uses consist of TPH.

5.15. PARCEL M3

Parcel M3 is located near the center of the property, bounded by Parcels F, G, M4, H/I, and M2. This parcel is located in the former UPRR Diesel Shop Area, which was used for service, maintenance, and storage of diesel locomotives. During UPRR's past remediation activities, soil with TPH concentrations up to 560 mg/kg was removed from this parcel to depths of five feet in the southern two-thirds of the parcel.

This parcel is currently developed as green space. During pre-excavation investigation of the parcel, TPH-impacted soils were encountered with concentrations up to 4,700 mg/kg (Kleinfelder 2011b). Arsenic was found at concentrations up to 140 mg/kg and depths up to 11 feet. One surface soil sample contained chromium at a concentration of 240 mg/kg.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.16. PARCEL M4

Parcel M4 is located on the eastern border of the property, along the southern boundary of Parcel N, the northern boundary of Parcel L and the eastern boundary of Parcel M3. This parcel is located in the former UPRR Fuel Storage Area, which included the Cal-Nev pipeline terminal, four above-ground storage tanks (ASTs), a fuel car loading area, and a pump house with associated piping. Specifically, this parcel contains the former location of railroad siding tracks. During UPRR's past remediation activities, soil with TPH concentrations up to 35,000 mg/kg was removed from this parcel to depths of five feet over most of the parcel.

This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A temporary parking area was constructed on this parcel in 2011/2012, with TPH concentrations up to 190 mg/kg, and metals and VOCs reported below their action limits. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs and SVOCs associated with diesel fuel. Figures 29 and 30 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.17. PARCEL N

Parcel N is located along the eastern border of the property, along the southern boundary of Parcel O1, the northern boundary of Parcel M4 and the eastern boundary of Parcels F/G. This parcel is located in the former UPRR Area East of Diesel Shop, which included a pipeline that ran from the fuel storage area to the eastbound fueling area. During UPRR's past remediation activities, soil with TPH concentrations up to 3,600 mg/kg was removed from this parcel to depths of five feet in the southwestern quarter of the parcel and along the pipeline location. Soil with TPH concentrations up to 8,300 mg/kg were removed from this parcel to depths of 7.5 feet along an alignment parallel to the pipeline location.

Future development plans for this parcel include residential construction. This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A human health risk assessment in 2007 determined that VOC concentrations in soil vapor are at

levels that do not require further investigation, remediation, or mitigation (Kleinfelder 2007f). A temporary parking area was constructed on this parcel in 2011/2012, with TPH concentrations up to 212 mg/kg, and metals and VOCs reported below their action limits. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs associated with diesel fuel. Figures 31 and 32 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.18. PARCEL O1

Parcel O1 is located along the eastern border of the property, along the southern boundary of Parcel O2, the northern boundary of Parcel N and the eastern boundary of Parcel E. This parcel is located in the former UPRR Area East of Diesel Shop, which included a pipeline that ran from the fuel storage area to the eastbound fueling area. During UPRR's past remediation activities, soil with TPH concentrations up to 1,900 mg/kg was removed from this parcel to depths of five feet along the pipeline location. Soil with TPH concentrations up to 6,300 mg/kg were removed from this parcel to depths of 7.5 feet from a location north of the pipeline location.

Future development plans for this parcel include residential construction. This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A human health risk assessment was performed in 2007 determined that the residual VOCs in the soil vapor do not pose an unacceptable health hazard under a future residential land use scenario involving construction of high rise residential housing units (Kleinfelder 2007e). Soil sampling results during this investigation included TPH up to 2,500 mg/kg, and VOCs and PAHs detected below their action limits. A box culvert and temporary parking area were constructed on this parcel in 2011/2012, with TPH concentrations up to 6,800 mg/kg, and metals, VOCs, and PCBs reported below their action limits. Buried piping was encountered, which tested negative for asbestos. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs associated with diesel fuel. Figures 33 and 34 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.19. PARCEL O2

Parcel O2 is located along the eastern border of the property, along the southern boundary of Parcel P/Q, the northern boundary of Parcel O1 and the eastern boundary of Parcel E. This parcel is located in the former UPRR Area East of Diesel Shop, which included a pipeline that ran from the fuel storage area to the eastbound fueling area. During UPRR's past remediation activities, soil with TPH concentrations up to 880 mg/kg was removed from this parcel to depths of five feet along the pipeline location.

Future development plans for this parcel include residential construction. This parcel is now developed as a temporary paved parking lot for the Smith Center for the Performing Arts. A human health risk assessment was performed in 2007 determined that the residual VOCs in the soil vapor do not pose an unacceptable health hazard under a future residential land use scenario involving construction of high rise residential housing units (Kleinfelder 2007e). Soil sampling results during this investigation included TPH up to 2,500 mg/kg, and VOCs and PAHs detected below their action limits. A box culvert and temporary parking area were constructed on this parcel in 2011/2012, with TPH concentrations up to 146 mg/kg, and metals and VOCs reported below their action limits. Current known contaminants of concern on this parcel consist of TPHs. Suspected or potential contaminants of concern consist of VOCs associated with diesel fuel. Figures 35 and 36 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.20. PARCEL P/Q

Parcel P/Q is located along the eastern border of the property, the northern boundary of Parcel O2 and the eastern boundary of Parcel E. This parcel is located in three former UPRR Areas: East of Diesel Shop, which included a pipeline that ran from the fuel storage area to the eastbound fueling area, and Eastbound Fueling Area, which was used for fueling locomotives departing to the east, and part of the Day Storage Tank Area, which contained a pump station and three diesel ASTs. During UPRR's past remediation activities, soil with TPH concentrations

up to 1,100 mg/kg was removed from this parcel to depths of five feet along the pipeline location, soil with TPH concentrations up to 7,900 mg/kg was removed to depths of five feet in the northeastern corner of the parcel, and soil with TPH concentrations up to 480 mg/kg was removed to depths of five feet in the northwestern corner of the parcel.

Future development plans for this parcel include a casino/hotel. A human health risk assessment was performed on this parcel in 2008 which determined that indoor air concentrations of the VOCs investigated will not reach a level requiring further investigation or mitigation (Kleinfelder 2008c). Soil samples collected during the investigation contained TPH at concentrations up to 3,100 mg/kg (primarily C10-C35) and selenium above the RC at a concentration of 87 mg/kg. VOCs and SVOCs were detected at concentrations below the RCs and RSLs. A box culvert was constructed on this parcel in 2011/2012, with TPH concentrations reported up to 42 mg/kg, and metals and VOCs reported below their action limits. A pedestrian bridge was constructed on the east edge of the parcel in 2015, with TPH concentrations reported up to 490 mg/kg (Kleinfelder 2015). Figures 37 to 40 show soil depth to remaining TPH-impacted soils and the remaining TPH concentrations, respectively.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

5.21. RIGHT-OF-WAYS

Right-of-ways are located along the parcel boundaries. Right-of-ways will transect various Parcels, discussed previously within this Section, and will be handled by City Parkway V. Figures showing the depth to remaining TPH-impacted soils and the remaining TPH concentrations for the right-of-ways are shown on Figures 5 through 40.

Groundwater impacts on the site known to be associated with past site uses consist of TPH.

6 SOIL MANAGEMENT REQUIREMENTS

As discussed in Section 5, the quantity of impacted soil, the contaminants of concern, and the concentrations of those contaminants of concern will vary by parcel. Initial on-site handling of soil will be performed by the Developer/General Contractor. The Developer/General Contractor should plan on segregating the soil based upon the information presented in Sections 4 and 5 of this document, and when unexpected conditions are encountered, as directed by the CEM.

Regardless of the method of soil removal, there are two soil management scenarios anticipated for the site activities involving removal of soils. These are 1) on-site stockpiling and sampling and 2) pre-excavation sampling and short-term staging. Soil management is dependent, in part, upon these scenarios and is discussed in this Section. Sampling protocol for both scenarios is discussed in the SAP.

During ongoing excavation activities in areas where contamination is anticipated to be encountered, or which during excavation activities, soils (or the excavation face) exhibit evidence of odors, staining, or vapors; the on-site CEM may, at his/her discretion decide to screen the soils for the purpose of stockpile segregation. Screening would consist of one or more of the following techniques: PID readings, visual observations, or field testing for arsenic, lead, or PCBs.

UPRR did not excavate and remediate soils across the entire 61-acre Symphony Park site. This SGMP applies specifically to those areas inside the UPRR remediation extents. For those areas outside the UPRR remediation extents, it is assumed that the soils are clean. However if, during the course of development in an area outside of the UPRR remediation extents, the CEM observes indications of potentially impacted soils, the potentially impacted soils will be evaluated under the requirements of this SGMP.

6.1. ON-SITE STOCKPILING AND SAMPLING

To allow for proper handling, documentation and record keeping of each soil classification, their source location and the purpose of their removal (Sections 4 and 9), City Parkway V shall

designate separate stockpile areas for each parcel. These can be located within one large designated area, or within various areas. Consideration should be given to haul routes and distance of travel so that temporary transport and stockpile storage remains within the Symphony Park boundary property (to minimize crossing roadways or public accessible areas).

Stockpiles will be separated and identified by excavation location and depth. It should also be noted that the Clark County Department of Air Quality (DAQ) Dust Control Handbook limits stockpile height to eight feet.

All stockpiled soils will be placed within a bermed containment area on an impervious working surface. To prevent entry of vehicles into the storage area, the containment berm should be a minimum of three feet in height but not high enough to prevent loading of trucks parked outside the containment. Examples of containment berm materials would be clean soil, pre-cast concrete separators (Jersey rails, K-rail medians), or hay bales. Whichever material is selected, it must be sufficiently constructed and maintained to prevent soils and water from exiting or entering the area. A single entrance point into the bermed area should be constructed and sufficiently ramped so that the storage area can be entered by rubber-tired loading equipment; can be used by loaded haul trucks to dump into the bermed areas; can be used for loading material from the ramp into empty haul trucks; and does not allow storm water sheet flow runoff into or out of the storage area. An example of a soil storage area is included in Appendix B, as Figure B-2.

The following three potential occurrences at the stockpiled soil storage area(s) can be mitigated through the use of the requirements of Section 8.1, which discusses how dust control and mitigation should be conducted as required by Clark County Air Quality Regulations:

- Total petroleum hydrocarbon (TPH) and/or volatile organic compound (VOC) vapor emissions from the stockpile(s).
- Dust emissions from the stockpile(s).
- Odor emissions from the stockpile(s).

6.1.1. Containment of Semi-Liquid Soils

Construction requirements may call for drilled shaft piers as foundation support for the structures being built which may result in drilling spoils that need to be contained on-site while awaiting analytical results. As drilled shaft spoils are a semi-liquid mixture of soil, groundwater, and drilling mud, the spoils shall be contained in a bermed area, lined with an impervious layer, such as visqueen. This containment area shall be constructed in such a way that the drilled shaft spoils do not run off onto the surrounding ground or seep through to the underlying ground. Additionally, since the site contamination is primarily associated with petroleum hydrocarbons in the soils above groundwater and at the groundwater interface, soils should be segregated by excavation depths.

6.2. PRE-EXCAVATION SAMPLING AND SHORT-TERM STAGING

At the discretion of City Parkway V, the Developer/General Contractor with the assistance of the CEM shall characterize the subsurface soils to be excavated, prior to excavation activities, by creating a three-dimensional grid of the soil area to be excavated. Pre-excavation characterization would be accomplished through the use of test pits, trenches, or boreholes. If a three-dimensional pre-excavation characterization of the entire excavation volume is not feasible, other sampling techniques could be used such as a phased excavation schedule with pre-excavation characterization performed prior to each phase.

Short-term staging of investigation spoils on-site may be required and shall follow the requirements outlined in Section 6.1 for stockpiled soils. Short-term staging may include utilizing containers (e.g. 40-cubic yard containers) instead of exposed stockpiles. In either case, the requirements of an impervious working surface shall be maintained.

Based on the analytical results of the pre-excavation characterization the CEM will direct the Developer/General Contractor during excavation activities, so that the soils are excavated from the ground and placed directly into trucks or containers for offsite disposal or recycling, or stockpiled on-site for on-site reuse.

6.2.1. Short-Term Containment of Semi-Liquid Soils

Construction requirements may call for drilled shaft piers as foundation support for the structures being built which will result in drilling spoils that need to be contained on-site for a short time pending transport. As drilled shaft spoils are a semi-liquid mixture of soil, groundwater, and drilling mud, the spoils shall be contained in a bermed area, lined with an impervious layer, such as visqueen. This short-term containment area shall be constructed in such a way that the drilled shaft spoils do not run off onto the surrounding ground or seep through to the underlying ground.

6.3. RIGHT-OF-WAYS

Other than for the installation of utilities, right-of-ways are anticipated to require limited soil removal. Soils excavated within the right-of-ways will be stockpiled as described in Section 6.1 or loaded and hauled directly as described in Section 6.2.

6.4. TRANSPORT AND DISPOSAL OF SOILS

Transport and disposal procedures will depend on the soil classification, defined in Section 4.

6.4.1. Clean Soils

Soils that are tested and found to be *clean* have no environmental reuse restrictions. Therefore, for transport and disposal purposes, these soils can be handled as general fill material, subject to standard hauling practices. The Developer/General Contractor shall be responsible for these soils.

6.4.2. Legally Clean Soils

Soils that are tested and found to be *legally clean* have no on-site environmental reuse restrictions, but may have off-site environmental reuse restrictions as defined by the off-site destination and/or receiver. If *legally clean* material will be taken off-site, it should be noted that the receiver may have specific acceptance criteria which may require additional testing and/or a

project-specific risk assessment... The Developer/Site General Contractor will need to verify the acceptance criteria for off-site disposal or reuse.

6.4.3. Contaminated, Non-Hazardous Soils

Soils that are tested and found to be *contaminated, non-hazardous* will be transported to, and disposed of at, a facility approved for the material. This will be coordinated by the City Parkway V. These soils would require transport under non-hazardous waste manifest, or bill of ladings sheets, as directed by the disposal facility.

6.4.4. RCRA Hazardous Soils

Soils that are tested and found to be *RCRA hazardous* must be transported by a licensed hazardous materials transporter to a permitted facility, under hazardous waste manifests. This will be coordinated by the City Parkway V.

6.4.5. Construction Debris

Any construction debris encountered will be addressed as discussed in Section 8.4.

6.5. WASTE MANIFESTS

The type of the manifest required to transport and dispose of wastes depends on the classification of the waste. Non-hazardous waste manifests will be prepared for *contaminated, non-hazardous* wastes. Hazardous waste manifests will be prepared for *RCRA hazardous* wastes. Preparation and signature of manifests will be decided by City Parkway V.

6.5.1. Non-Hazardous Manifests

Each disposal facility will have its own manifest/waste characterization form and analytical requirements for acceptance of wastes. Wastes that have been classified as *contaminated, non-hazardous*, will require either a non-hazardous waste manifest, or a bill of lading for transport and disposal. The CEM shall coordinate with the transporter's representative for their

signature on the manifests or bill of ladings (as appropriate) and will be provided copies of all final weigh tickets. An example non-hazardous waste manifest is included in Appendix C.

6.5.2. RCRA Hazardous Waste Manifest

Wastes classified as *RCRA hazardous* wastes will require a hazardous waste manifest. In addition to the manifest, a Land Disposal Restriction Certification/Notification may be required for the acceptance of wastes. An example hazardous waste manifest and an example land disposal notification are included in Appendix C.

City Parkway V will decide who will prepare the Uniform Hazardous Waste Manifest and the Land Disposal Restriction Certification/Notification forms. The manifest must be prepared and processed in accordance with USEPA, NDEP, and DOT regulations. Once the manifests are prepared and signed by the generator (as decided by City Parkway V), the CEM will obtain the signature of the transporter and retain two copies of this manifest. The CEM will send one copy of the manifest to NDEP and one copy to City Parkway V.

6.6. RECORD KEEPING

The CEM will keep records of all waste manifests, waste certificates, and weight tickets for inclusion in any reports that are required, and for verifying quantities for payment of contaminated/hazardous soils handling and disposal, as necessary.

7 GROUNDWATER MANAGEMENT REQUIREMENTS

Groundwater may be encountered during construction activities. The type of groundwater management required is dependent upon the groundwater quality and the site specific construction requirements. Therefore, groundwater management will be required to be addressed on a case-by-case basis by each Developer/General Contractor. Depending on the water volume and the construction needs, groundwater management techniques are anticipated to consist of onsite storage for removal and disposal at a recycling or disposal facility; onsite storage, treatment, and discharge to a permitted discharge point; or a combination of both methods.

Regardless of the technique, groundwater management will require planning in advance of construction, so that the appropriate site specific information can be obtained for disposal profiling, for the NPDES permit application process; and for negotiating the discharge point(s) and piping alignments. It is anticipated that, if necessary, discharge can occur to a storm sewer conveyance. An existing sewer line is located in City Parkway.

It is recommended that the Developer/General Contractor use steel fractionation (frac) tanks (or equivalent) for storage of the pumped groundwater prior to disposal or discharge. The storage tanks should be capable of settling out solids. If discharge is planned, the Developer/General Contractor should plan for sufficient capacity for the suspended sediments to settle before discharge. In addition, water treatment for contaminants may be required before discharge can occur.

Further discussion on these permits and the information and process required for obtaining them is presented below in Section 7.1.

7.1. PARCELS

As described in Section 5, each parcel has unique characteristics related to historical railroad operations. Additionally, past studies and historical information indicates that groundwater is potentially impacted with TPH and VOCs. For instance, it is well documented that those parcels

in and around the former Fuel Storage Area have groundwater with approximately ¼ inch of free product remaining in it.

Volatile organic compounds are potentially present in groundwater underlying the Symphony Park site. Given the potential for groundwater to be contaminated, the Developers/General Contractors should be prepared to bring in appropriate treatment systems to be used to clean the water prior to discharge to meet NDEP permit limits. This is further discussed in Section 7.5.

While groundwater flows in an easterly direction generally following local topography toward the Las Vegas Wash, local conditions such as construction activities may affect the flow direction. Given these considerations, the Developers/General Contractors on a given parcel should be aware that even if their respective parcels have no restrictive soil management considerations, the potential for encountering contaminants in the groundwater is still present.

7.2. RIGHT-OF-WAYS

Groundwater management may be necessary within the right-of-ways boundaries. However, if groundwater is to be managed during construction work on a right-of-ways segment then the same guidelines presented above will apply.

7.3. CEM ASSISTANCE AND OVERSIGHT

The Developers/General Contractors should arrange for assistance from a CEM for preparation of a temporary discharge permit application and a compliance program at least two months prior to commencing those construction activities where groundwater will be encountered. This will allow time for the CEM to arrange for sampling (if needed), develop a treatment approach, prepare the permit application package, and NDEP to issue the permit. A CEM is required to oversee the compliance activities under the permit (sampling, analysis, and reporting) and prepare the monthly Discharge Monitoring Reports (DMRs) during the discharging period.

7.4. STORAGE AND DISPOSAL

When a parcel's construction activities will encounter groundwater, but the volume of groundwater is insufficient for discharge, groundwater management by pumping the groundwater into a storage tank for later removal by a pump truck may be desired. This scenario would include the displacement of water during grouting pier foundations, or other support structures.

This will also apply to water (stormwater) within the soil stockpile storage area described in Section 6.1.

7.5. NPDES DISCHARGE PERMITTING

The NPDES permit program is managed by the NDEP Bureau of Water Pollution Control (WPC). The WPC issues three types of NDPES permits relevant to groundwater pumping and discharge: a De Minimis permit (250 gallons per minute limit), a Temporary permit with Authorization to Discharge (six months or less of discharging), and a Permanent permit with Authorization to Discharge. For construction jobs only a De Minimis or Temporary permit will be needed, depending on the anticipated discharge flow rate. New Temporary permits can be obtained for consecutive and multiple six month windows as needed during construction as long as the discharging will remain temporary.

7.5.1. De Minimis NPDES Discharge Permitting

De Minimis permits are obtained for construction activities that require dewatering activities such as deep drill shaft excavations and pilings placement, installation of grade beams, and other below surface construction work that would require groundwater pumping with a flow rate of 250 gallons per minute (gpm) or less.

The following presents a general list of the information required to compile the De Minimis Notice of Intent (NOI) application package:

- Name and contact information for responsible party, operator, and billing information.

- Date of anticipated discharge commencement and completion.
- Nature of the business and a detailed description of the whole project.
- Detailed description of the dewatering activities, including a process flow diagram.
- Anticipated flow rates.
- Analytical data from groundwater samples representing the water to be discharged.

The majority of the information listed above will be presented within the NOI application form. The current application fee for a temporary permit is $200.00. This fee is due upon submittal of the application.

As discussed above in Section 7.3, the discharging activities will require CEM oversight that includes sampling, analyses, and reporting. The permit's Authorization to Discharge once issued will contain discharge limits for flow rate, various VOCs, TPH, and possibly metals and other inorganic compounds and a required frequency of sampling. The sampling and analyses activities will need to be properly coordinated and managed to ensure proper compliance.

7.5.2. Temporary NPDES Discharge Permitting

Temporary permits are obtained for construction activities that require dewatering activities such as deep drill shaft excavations and pilings placement, installation of grade beams, and other below surface construction work that would require groundwater pumping on a temporary basis. If more than six months are required for temporary discharging on a construction project then a new temporary permit application can be submitted to receive a new six month permit. This new application should be submitted at least one month prior to the expiration of the existing permit.

The following presents a general list of the information required to compile the temporary permit application package:

- Name and contact information for responsible party.

- Date of anticipated discharge commencement.
- Nature of the business and a detailed description of the whole project.
- Detailed description of the dewatering activities, including a process flow diagram.
- Anticipated flow rates.
- Analytical data from groundwater samples representing the water to be discharged.
- Description of planned water treatment to be used.
- A drawing showing the site plan of the construction project and also showing the discharge points into the existing storm sewer that will be used to discharge the groundwater.
- Latitude and longitude of each discharge point.
- A drawing that shows the storm drain conveyance that will receive the discharge and the receiving water it discharges into.
- A letter of authorization or encroachment permit authorizing the discharge to the conveyance from the City of Las Vegas.

The majority of the information listed above will be presented within the NDEP temporary permit application form. The current application fee for a temporary permit is $250.00. This fee is due upon submittal of the application.

As discussed above in Section 7.3, the discharging activities will require CEM oversight that includes sampling, analyses, and reporting. The permit's Authorization to Discharge once issued will contain discharge limits for flow rate, various VOCs, TPH, and possibly metals and other inorganic compounds and a required frequency of sampling. The sampling and analyses activities will need to be properly coordinated and managed to ensure proper compliance.

7.5.3. Permanent NPDES Discharge Permitting

A permanent NPDES permit application would be required for those projects that will involve installation of a permanent dewatering system. This would be relevant to a building that would have permanent occupied structures below the groundwater. Examples include a deep underground parking garage or shopping malls with below grade levels. Construction activities will not require permanent permits as noted above in Section 7.5.1.

The permit application process is slightly more involved than the temporary permitting. More forms would be required for submittal. These include EPA Form 1, General Information and EPA Form 2E, Facilities Which Do Not Discharge Process Wastewater, and NDEP's NPDES Supplemental Form. Much of the information required in these forms includes all of that required in the temporary application as listed above in Section 7.5.1.

Additional information for a permanent permit includes:

- Daily maximum and 30-day average flow rates, including the design capacity and requested limits.
- Nature of business of the applicant and process.
- Detailed effluent characteristics with specific analytes to be included in the water sampling.
- More detailed information on treatment systems, including sketches and process flow diagrams.

Permit fees for permanent NPDES permit applications are based on average flow rates for each system. The application process and NDEP review could take one to two months longer than the temporary discharge permit applications.

7.6 GROUNDWATER TREATMENT

It is highly recommended that all groundwater to be discharged at the Symphony Park site be treated prior to discharge regardless of parcel-specific conditions. Pumping gradients created during construction dewatering on the site could cause contaminated groundwater to migrate to areas of the site otherwise deemed clean. If no treatment is applied, the Developer/General Contractor takes the risk of significant construction delays while bringing in a treatment system later. This could occur due to obtaining water samples during compliance monitoring that show a VOC or TPH above discharge limits caused by a pumping gradient bringing in nearby contamination to the construction area.

As mentioned above in Section 7.1, TPH (including free product) and VOCs are likely to be detected in the groundwater on the Symphony Park site. Developers/General Contractors should be prepared to procure a temporary treatment system to clean the water prior to discharging to meet the discharge limits that each permit will require. Projected key discharge limits based on precedent temporary discharge permits are listed below.

These would most likely be the constituents exceeding discharge limits if no treatment were to be applied:

TPH – 1 mg/L
PCE – 5 µg/L
Benzene – 5 µg/L

Based on the potential groundwater characteristics and the NPDES permit requirements, the components of a treatment system listed below would be typical of what would be needed to meet discharge limits. Additional treatment components may be deemed necessary on a case-by-case basis. These include but are not limited to the following:

- Hoses and fittings such as Cam-Lock or equivalent with enough length to reach the nearest discharge point from the storage tanks. Hoses should be traffic-rated to allow trucks and construction equipment to drive over them without causing damage.
- Centrifugal pump or equivalent with a generator.
- Flow meter to monitor ongoing flow and to generate average flows for the DMR.
- Bag filtration unit. Some of these units can be rented along with carbon adsorption units. The carbon vendor can provide specifications on the appropriate filters, such as 5 micron, 10 micron, etc., for solids removal.
- Oil/water separator to remove potential free product. These units can be rented or purchased depending on how long it would be needed. Rental fees can be high enough to warrant a purchase. Some tank vendors who support UST work in the Las Vegas Valley have these units available for renting.
- Carbon adsorption for treatment of VOCs. Carbon units should be filled with oleophillic media (OMC units) to allow polishing of TPH and/or free product not captured in the oil/water separator. The OMC units allow for the oil to be captured without compromising the ability of the water to flow through and be treated for VOCs.

The Developer/General Contractor should work with their CEM during permitting to select an efficient and cost effective treatment system. The CEM can assist in coordinating with vendors to obtain all the necessary components, equipment, and materials for proper and compliant water discharging.

8 OTHER REQUIREMENTS

8.1. DUST CONTROL AND MITIGATION

As required by the Clark County DAQ Rules and by Clark County Air Quality Regulations, Sec. 94, the Developer/General Contractor will be responsible for taking actions to prevent, reduce, or mitigate fine particulate matter (PM-10) emissions. Depending on the size of the project a Dust Control Permit and a Dust Mitigation Plan may be required. It will be the responsibility of each parcel's Developer/General Contractor to determine which criteria they will need to follow when applying for the dust permit. Supplemental permits may also be needed for activities such as (but not limited to) stockpiling, backfilling or crushing, etc. A complete list of the necessary Supplemental permits can be found on the Clark County web site. The Developer/General Contractor is responsible for preparation of and adherence to this plan, as well as adhering to other pertinent requirements referenced. It should be noted that the DAQ Dust Control Handbook limits stockpile height to eight feet. Further information concerning these and other possible County requirements is available through the County's web site:
http://www.clarkcountynv.gov/depts/airquality/pages/default.aspx

Dust suppression shall be performed by the Developer/General Contractor, as required, by spraying with a light mist of water or other dust suppressant acceptable to DAQ to prevent visible dust emissions. Dust suppression activities and techniques must comply with DAQ standard and requirements.

8.2. STORM WATER POLLUTION PREVENTION

Storm water management may be required by the NDEP's Bureau of Water Pollution Control, for compliance with construction activities defined under Category X of 40 CFR §122.26. As appropriate, the Developer/General Contractor shall obtain a Construction Storm Water Permit and implement a site specific Storm Water Pollution Prevention Plan (SWPPP). The Contractor is responsible for preparation of, and adherence to, the SWPPP.

The SWPPP must include provisions for containing storm water that contacts stockpiles of impacted materials and preventing runoff onto other areas of the project site. Best management practices (BMPs) must be utilized to prevent soil (impacted or otherwise) from washing into storm drains, or being tracked or washed offsite. Best Management Practices should also protect open excavations to the extent practical, to prevent flooding and the subsequent need for over-excavation.

8.3. SPILLS OR RELEASES

The Contractor shall implement and maintain the appropriate BMPs necessary to prevent and mitigate construction activity that could cause releases (spills) in excess of the Reportable Quantities (40 CFR PART 302). Any release above the Reportable Quantities must be reported to the NDEP. A release can be described as any pollutant, hazardous waste or contaminant that has been spilled, leaked, pumped, poured, emitted, emptied, discharged, injected, escaped, leached, dumped, or disposed into the environment. This would then be deemed a spill.

The reportable quantity for petroleum products such as gasoline, diesel, and hydraulic fluid is 25 gallons or three cubic yards of contaminated material, or the presence on or in groundwater. A spill of any quantity that affects a waterway within the State of Nevada must be reported, regardless of the quantity. This would apply to releases that enter a storm drain.

Spills must be reported to the NDEP as soon as possible, but no later than the end of the first working day of the release by calling the in state spill reporting hotline: **1-888-331-6337**.

The spill reporting form and contact information is available through the NDEP's Bureau of Corrective Action's web site: http://www.ndep.nv.gov/bca/bca01.htm

8.4. UNEXPECTED CONDITIONS

If unexpected conditions are encountered during excavation activities, construction activities at, and within the immediate vicinity of, the excavation should be suspended until the nature and extent of the unexpected condition can be evaluated and procedures implemented for worker protection. The CEM has the authority to determine the appropriate course of action based on

the principles of this SGMP when dealing with unexpected conditions and the Developer/General Contractor shall follow the CEM's direction. Unexpected conditions are defined as contaminated soils in areas not anticipated; contamination that does not appear to be petroleum or volatile organics; encounters of transite pipe (asbestos); or encounters of subsurface structures or debris. All encounters will be documented on the as-built drawings, as specified in Section 9.

8.4.1. Unknown or Unexpected Contamination

Unknown or unexpected contamination may be observed by the CEM or the Developer/General Contractor who will then report the discovery to the CEM. The CEM will evaluate the discovery and if necessary, notify NDEP (e.g. determined to be a contaminant other than anticipated for the parcel; determined to be a quantity greater than the reportable quantity; free product; or, is categorized as hazardous). Any sampling required during the evaluation will be done in accordance with the SAP. Assistance from the Developer/General Contractor may be required during the evaluation of the discovery, through further excavation and/or removal and transport of the discovery to another area of the site for temporary storage, as deemed appropriate by the CEM.

8.4.2. Underground Structures or Debris

Underground structures or debris will be reported to the CEM and to NDEP. The CEM will evaluate the discovery and, in conference with NDEP, the handling will be determined. Assistance from the Developer/General Contractor may be required during the evaluation of the discovery, through further excavation and/or removal and transport of the discovery to another area of the site for temporary storage, as deemed appropriate by the CEM. Siting and use of a temporary storage area will fall under the requirements of Section 6.1 as regards stockpile storage areas, and temporary storage areas will be designated by the City Parkway V. Any sampling required during the evaluation will be done in accordance with the SAP. If suspect asbestos containing materials are encountered, then Section 8.4.3 should be followed.

8.4.3. Suspect Asbestos Containing Materials

If the material is suspected to contain asbestos, the area should be cordoned off to prevent further disturbance, the material wetted and/or covered with plastic sheeting, which should be secured in place. The Developer/General Contractor and CEM shall work with the City Parkway V to have a State of Nevada certified asbestos consultant-inspector evaluate or test the material for asbestos. If determined to be asbestos-containing, the Developer/General Contractor or the City Parkway V will then arrange for an asbestos abatement contractor to remove the material, as appropriate based on the contractual agreement between the Develop/General Contractor and the City Parkway V. All asbestos abatement personnel shall have the appropriate Nevada certifications; and all abatement shall be done in accordance with state and federal requirements.

Depending on the type and quantity of asbestos containing material, NESHAP notification to Clark County may be required prior to abatement.

An asbestos project design for the abatement of asbestos containing debris in soil should be developed by a State of Nevada certified asbestos consultant-project designer. The design should include provisions for worker protection, wind fencing, stabilization, wetting, controlled removal, packaging, transportation, and disposal. Separate designs should be developed for friable and non-friable materials.

The remediation shall be overseen by an appropriately certified State of Nevada asbestos consultant (inspector and monitor) with at least 6 months of experience identifying and overseeing asbestos debris in soil.

All asbestos material must be transported off site for disposal at a facility capable of accepting the material. Within southern Nevada, asbestos containing material is typically accepted by the following facility:

- Republic Services of Southern Nevada's APEX Regional Landfill, located in Clark County, Nevada

9 AS-BUILT DOCUMENTATION

Encountered contaminated soils which are left in place will need to be accurately documented on as-built drawings. This information is to be recorded concurrently with construction progress. Similarly, any unexpected subsurface conditions that are encountered will also need to be documented, whether removed or not.

As-built documentation will be necessary to account for quantities and source. This will be prepared by the CEM, with the assistance of the Developer/General Contractor (through their as-built documents) or City Parkway V, as appropriate.

9.1. PARCELS

The formal, accurate as-built documentation will be the responsibility of the Developer/General Contractor. As part of his/her field notes, the on-site CEM shall maintain the approximate locations, thorough sketches, written description, or non-surveyed field mapping.

9.2. RIGHT-OF-WAYS

The formal, accurate as-built documentation will be the responsibility of City Parkway V. As part of his/her field notes, the on-site CEM shall maintain the approximate locations, thorough sketches, written description, or non-surveyed field mapping.

9.3. REPORTING REQUIREMENTS

If the containment area and stockpiling soil management method is used, the CEM will maintain an approximate volumetric accounting of each *contaminated, non-hazardous* and *RCRA hazardous* soil stockpile, consisting of the location of the excavation and the purpose of the excavation. The CEM will send a copy of the stockpile accounting to City Parkway V on a monthly basis.

If petroleum product in free or liquid phase is observed in thicknesses greater than ½ inch prior to, or during, on site construction activities, NDEP and City Parkway V will be notified of such observations by the CEM.

The notice should include the following information:

- The observed location of the free or liquid phase product;
- The method of discovery (groundwater well, open excavation, etc.);
- Lab analysis of the free or liquid phase product; and
- Status of construction activity on site.

Similarly, if heavy metals are observed in soil or groundwater on site, or heavy metals are observed in soil or groundwater emanating from the site, NDEP and City Parkway V will be notified of such observation by the CEM. The notice should include the following information:

- The observed location of the heavy metals;
- A summary of the field work done to collect soil or groundwater samples contaminated with heavy metals;
- Lab analysis of soil or groundwater contaminated with heavy metals; and
- Status of construction activity on site.

10 HEALTH AND SAFETY

All parties involved with construction activities of the Symphony Park project shall need to develop their own site-specific Health and Safety Plan (HASP), based upon their roles and upon the site specific hazards and job hazards associated with those roles and hazards. Subcontractors may, at the discretion of their Developer/General Contractor, accept the Developer/General Contractor's requirements. Site visitors may be required to review and accept the Developer/General Contractor's on-site safety requirements. The HASP, as a minimum, should address the following:

- Hazards commonly associated with contractors/subcontractors work;
- Health and Safety Training;
- Medical Surveillance Program;
- Hazard Evaluation;
- Air and Personal Monitoring;
- Personal Protective Equipment;
- Site Control;
- Decontamination;
- Safe Work Practices;
- Emergency Procedures; and
- Standard Operating Procedures

All contractors and subcontractors, including waste handlers, waste haulers and emergency response subcontractors, who have the potential to be exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the Site work must receive appropriate training in accordance with local, state, and federal regulations, including but not limited to 29 CFR 1910.120 and 29 CFR 1926 in the federal OSHA requirements. Contractors and subcontractors are responsible for the identification and implementation of the appropriate training of their employees. There may also be railway safety training requirements for parcels bordering tracks.

11 REFERENCES

City Parkway V, Inc., 2006, Outline for Soil and Groundwater Contamination Handling At 61-Acre Site in Las Vegas, Nevada, dated August 22.

Converse Consultants, 2000, Environmental Risk Management, Former Union Pacific Railroad Property, Lot 5, Las Vegas, Nevada, dated November 3.

Converse Consultants, 2002a, Preliminary Geotechnical Investigation, Proposed University of Nevada Medical Center – 100 South Grand Central Parkway, Las Vegas, Nevada, dated June 12.

Converse Consultants, 2002b, Preliminary Geotechnical Investigation, Northern Portion of the Site – 100 South Grand Central Parkway, NEC Grand Central Parkway and Bonneville Avenue, Las Vegas, Nevada, dated June 27.

Converse Consultants, 2002c, Trenching Oversight Report, Former Union Pacific Railyard Site, 61-Acre Vacant Parcel, West of the Downtown Casino District, Las Vegas, Nevada, dated September 11.

Converse Consultants, 2002d, Risk-Based Evaluation, City Parkway IV & V, Approximately 61-Acre Site, Lot 5, Las Vegas, Nevada, dated September 24.

Converse Consultants, 2006a, Design-Level Soil and Foundation Investigation, Lou Ruvo Alzheimer's Institute, NEC of Grand Central Parkway and Bonneville Avenue, Las Vegas, Nevada, dated June 27.

Converse Consultants, 2006b, Approximate 2.0-Acre Undeveloped Parcel, NEC Bonneville Avenue and South Grand Central Parkway, Las Vegas, Nevada, dated July 7.

Converse Consultants, 2007a, Arsenic Background Evaluation, Union Park, Approximate 61-Acre Site, Las Vegas, Nevada, dated July 3.

Converse Consultants, 2007b, Final Report-Limited Subsurface Assessment, Parcel J, Union Park Development, Las Vegas, Nevada, dated November 19.

Dames & Moore, 1989, Final Report, Site Characterization Investigations and Recommended Remedial Action, Union Pacific Railroad Yard, Las Vegas, Nevada, dated July 29.

Kleinfelder, 2007a, Final Soil and Groundwater Management Plan, Union Park 61-Acre Site, Former Union Pacific Railroad Fueling and Maintenance Yard, Las Vegas, Nevada, dated March 21.

Kleinfelder, 2007b, Mass Excavation Soil Management Report, Lou Ruvo Brain Institute, Parcel A1, Union Park 61-Acre Site, Former Union Pacific Railroad Fueling and Maintenance Yard, Las Vegas, Nevada, dated May 8.

Kleinfelder, 2007c, Power Trench Excavation Soil Management Report, Lou Ruvo Brain Institute, Parcel A1, Union Park 61-Acre Site, Former Union Pacific Railroad Fueling and Maintenance Yard, Las Vegas, Nevada, dated June 29.

Kleinfelder, 2007d, Recommendation to Change of Site-Specific Action Level for Arsenic in Soil, Union Park 61-Acre Site, Former Union Pacific Railroad Fueling and Maintenance Yard, Las Vegas, Nevada, dated July 5.

Kleinfelder, 2007e, Soil Vapor Survey and Human Health Risk Assessment, Parcels C, D, F, and O, Union Park Development, Las Vegas, Nevada, dated August 31.

Kleinfelder, 2007f, Soil Vapor Survey and Human Health Risk Assessment, Parcels L and N, Union Park Development, Las Vegas, Nevada, dated August 31.

Kleinfelder, 2008a, Groundwater Monitoring Well Sampling, Parcel J and K, Union Park 61-Acre Site, Las Vegas, Nevada, dated February 19.

Kleinfelder, 2008b, Clarification to Final Soil and Groundwater Management Plan, Union Park 61-Acre Project Site, Former Union Pacific Railroad Fueling and Maintenance Yard, Las Vegas, Nevada, dated March 24.

Kleinfelder, 2008c, Site Characterization and Human Health Risk Assessment, Parcels P and Q, Union Park Development, Las Vegas, Nevada, dated November 24.

Kleinfelder, 2010, Pre-Excavation Sampling and Analysis for Mass Excavation Sampling and Analyses of LIED Discovery Children's Museum & The Smith Center for the Performing Arts Parking Garage, Las Vegas, Nevada, dated December 16.

Kleinfelder, 2011a, LIED Discovery Children's Museum, Pier Drilling Spoils Sampling and Analysis, Symphony Park, Las Vegas, Nevada, dated January 31.

Kleinfelder, 2011b, Pre-Excavation Sampling and Analysis for Mass Excavation Sampling and Analyses of Parcel M3, Symphony Park, Las Vegas, Nevada, dated May 31.

Kleinfelder, 2012a, Site Cleanup / Soil Management Report, Parcels M1 and M2, Symphony Park, Las Vegas, Nevada, USEPA Region 9 Brownfields Program (R9 Tracking #11-305), dated April 16.

Kleinfelder, 2012b, Human Health Risk Assessment Update, Parcel L, Symphony Park Development, Las Vegas, Nevada, dated August 9.

Kleinfelder, 2012c, Pre-Excavation Sampling and Analysis for Mass Excavation of Symphony Park Pedestrian Bridge, Las Vegas, Nevada, dated August 24.

Kleinfelder, 2014, Soil Management Activities, Temporary Parking Area – Symphony Park Parcel B, Las Vegas, Nevada, dated August 19.

Kleinfelder, 2015, Environmental Sampling and Geotechnical Exploration Report, Pedestrian Bridge at Symphony Park, South of Parcel P/Q, Las Vegas, Nevada, dated April 27.

Nevada Division of Environmental Protection, 1997, Regulatory Closure Letter, dated April 3.

Terracon, 2003, Phase II Environmental Site Assessment, 61-Acre Undeveloped Parcel, NEC Bonneville Ave. and Grand Central Pkwy., Las Vegas, Nevada, dated April 2.

Terracon, 2007, Limited Site Investigation, World Jewelry Center, SWC Grand Central Parkway and City Parkway, Las Vegas, Nevada, dated April 5.

USPCI, Inc. Consulting Services, 1992, Final Remedial Action Plan for Petroleum TPH Contaminated Soil, Union Pacific Railroad, Las Vegas, Nevada Rail Yard, dated June 6.

Western Technologies Inc., 2007, Subsurface Characterization, Proposed Charlie Palmer Hotel, Union Park – Parcel G, NWC Discovery Avenue and City Parkway, Las Vegas, Nevada, dated December 13.

FIGURES

APPENDIX A
SAMPLING AND ANALYSIS PLAN

APPENDIX B

SOIL/WASTE CLASSIFICATION MATRIX

AND

EXAMPLE SOIL STORAGE AREA DIAGRAM

APPENDIX C
EXAMPLE MANIFESTS