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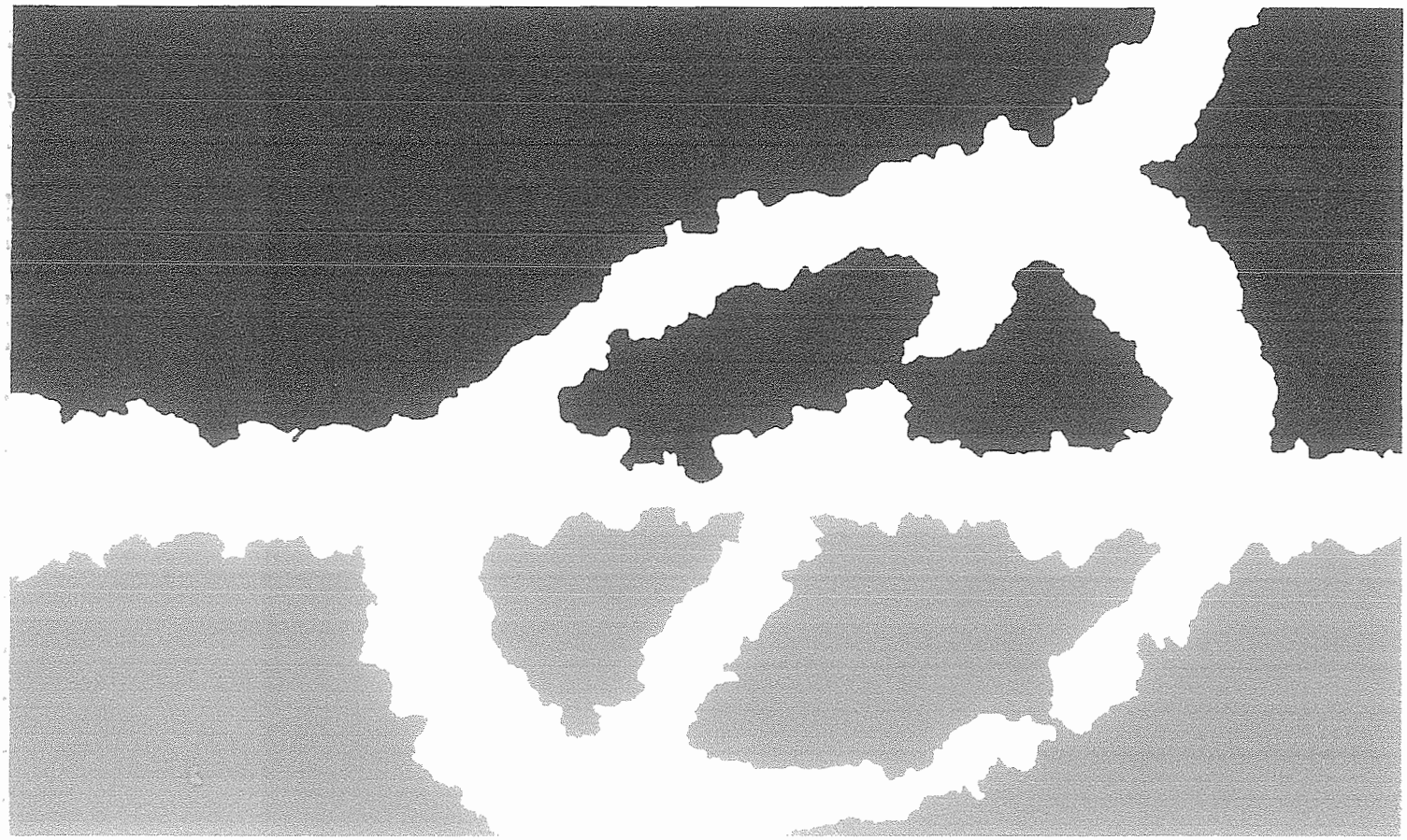

FEASIBILITY REPORT
HOPKINTON INDUSTRIAL LAND ACCESS STUDY
Hopkinton, New Hampshire

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Project No. 99354
June 12, 2000

Mr. Jeffrey Taylor, Co-Chair
Economic Development Committee
Town of Hopkinton
Town Hall
Hopkinton, New Hampshire 03229
603-746-3170

Subject : Hopkinton Industrial Land Access Study

We are very pleased that the Town of Hopkinton Economic Development Committee has chosen Provan and Lorber to develop potential vehicle routings to access industrial lands in the community. This report works toward the selection of one routing that best meets the needs of the Town. The report is attached for your review.

It is during this initial project phase (Industrial Land Access Study) where your committee's decisions can make the greatest impact on reducing overall construction and project costs. Since the publication of the draft report in January, the Committee and Provan and Lorber staff conducted a site walk of selected routes. This report incorporates a cost change for Alternate B that was identified on the walk. This report also incorporates Section II – Project Area and Market Demand that was provided by the Capital Region Development Council.

We look forward to presentation of this report to your committee on Monday, June 12, 2000. Should you have any questions or wish to schedule the route walk, please feel free to call me at 746-3220.

Very truly yours,

John Chandler

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& PLANNERS

FEASIBILITY REPORT
FOR
HOPKINTON INDUSTRIAL LAND
ACCESS STUDY
FOR THE
TOWN OF HOPKINTON
HOPKINTON, NEW HAMPSHIRE

June 2000

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PROJECT NO. 99354

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I. INTRODUCTION

A. PURPOSE

The purpose of this study is to examine alternative routes that will provide access to the industrial zoned property that is currently accessible only from the Burnhams Interval Road via Contoocook Village.

B. GOAL

Develop a route that will:

- Provide the best possible access from I-89
- Be affordable to the Town or can be made affordable by its creation
- Be environmentally permittable
- Create new industrial frontage and provide access to new areas for industrial development
- Will minimize impacts to abutters
- Minimize traffic and truck traffic in Contoocook Village and on Pine and Maple Street's

C. SCOPE OF SERVICES

This report provides the initial "feasibility phase" of design for an industrial access road and should be considered a "planning level study". It is not intended to be sufficiently accurate or provide adequate detail for the "preliminary design phase" where a preferred alternate is chosen or the "final design phase" where detailed construction plans are developed. The intent of this phase is to eliminate less desirable routes and carry forward routes that appear to be feasible based on available information. As the project progresses and better information is developed, the estimated costs will become more accurate. Provan & Lorber, Inc. is under contract to provide the following engineering services in accordance with current accepted engineering practices:

1. Obtain existing/available data, reports, mapping, soils and wetland mapping, engineered plans, town zoning and planning information, traffic count data, aerial ortho-photographic mapping; 911 mapping, tax mapping and other information deemed necessary by our firm. Walk appropriate portions of the study area to obtain a "hands on" idea as to that areas' characteristics.

   Review the July 1998 Hopkinton Tax Base Diversification Strategy report prepared by Applied Economic Research. Obtain Additional existing/available data from the Office of State Planning, Capital Regional Development Council and the Town.

2. Review existing/available current Federal Emergency Management Agency mapping to ascertain the general location of both the floodway and floodplain along the Contoocook River within the study area. Contact the Agency to ascertain whether they have updated the Contoocook River FEMA mapping as they have the Merrimack River basin.

   Review State of NH Department of Transportation highway mapping.

3. Compile and combine (as appropriate) existing/available mapping. Prepare a base map upon which access options will be screened.

4. Obtain industrial market demand data from CRDC. Industrial park size and other criteria will be provided to our firm. Meet with their representatives. Two meetings are anticipated.

5. Develop roadway and/or bridge crossing options with regard to accessing the Burnham Intervale Road industrial area. We anticipate that three to four options would be screened for technical feasibility. Impacts, opportunities, and important features will be described for each screened option. Some of the routings that we anticipate to initially explore from which options would be selected for screening include:

   - A corridor from Exit 7
   - A corridor from Route 202
   - A bridge from as close to Exit 6 as possible
   - Others as deemed appropriate by our firm

6. Perform an Opinion of Probable Cost comparison screen of those options deemed feasible. This comparison would include annualizing capital and operation and maintenance costs. Opinions of Probable Cost for utilities can be provided as an additional service. Identify federal and state funding programs that can offer project financing. Strategies for acquisition of such financing will be suggested.

7. Show the general routing, bridge or other important components for those options deemed feasible on the base map.

8. Prepare a written report of our findings, comparisons, conclusions and recommendations. Create a comparison matrix to describe site/routing characteristics, cost and market issues, providing a framework with which to compare options and a tool to aid in selecting one option.

9. Prepare for and attend meetings with the Town to discuss the project and to gain input and direction. Three (3) meetings were estimated.

10. Propose options on a screening level basis for lowering pedestrian/vehicle conflicts on Pine Street. Both technical Feasibility and Opinion of Probable Cost will be addressed.

D. EXECUTIVE SUMMARY

This study examined alternative routes to provide access to the industrial zoned property that is currently accessible only from the Burnhams Intervale Road via Contoocook Village. Initially 6 routes were presented to the Hopkinton Economic Development Committee for consideration. An alternative along Kearsarge Avenue was abandoned due to numerous residential and wetland impacts. Remaining routes were identified as Alternates A (starting at Kast Hill), B (starting at PaperTech), C (starting on 127 between Exit 6 and PaperTech), D (from Exit 7 to Bound Tree Road, and E (from Compaq at 127).

A base map was developed to illustrate each alternative at a scale of either 1"=400' or 1"=200'. Information on the base map includes existing roads, property lines, wetlands, floodplains and floodways, soils types, contours (elevations), and features visible from aerial photographs taken in1980. All of the information was obtained from existing sources.

Roadway design criteria was established by using the Town of Hopkinton criteria for a Major Collector Street. The design speed was reduced from 50 mph to 40 mph in order to minimize costs and impacts. The 80-foot wide corridor shown on the plan is designed to accommodate large trucks by providing adequate width for two twelve-foot wide lanes with ten-foot wide shoulders.

Opinions of probable cost were developed for each Alternative as a basis for comparison. Unit cost include a cost per linear foot of a $ 160 for typical roadway segments, bridges over the Contoocook were estimated at $150 per square foot for a 44' wide bridge, and bridges through the floodway were estimated at $100 per square foot. House acquisitions were estimated at $150,000 each. Land cost for road construction was estimated at $20,000 per acre for an 80-foot wide right-of-way. The increased value of land adjacent to the industrial access road was estimated at $20,000 per acre assuming those lots would be 200 feet deep.

A comparison matrix (Table 5) was developed in spreadsheet form to simplify the decision process. Items on the matrix include the total opinion of probable cost of each alternative and the net cost after deducting the increased value of the land due to the new road. Travel times were estimated for each alternative from the industrial land to I-89 Exits 5, 6, and 7. The matrix shows that the routes with the shortest travel time from I-89 are the most expensive to construct and created the least amount of new industrial frontage.

The market demand analysis concludes that direct interstate access is essential to be promoted as an Interstate Business Park. Alternatives C and E, which have estimated travel times from Exit 6 of 4.5 minutes and 3 minutes respectively, are the only alternatives that meet the definition of "direct interstate access." Due to the impacts and cost associated with Alternate E, this report recommends that Alternate C be carried to the next phase as the preferred alternative. Alternates D and E should also be carried forward in the event that C becomes unacceptable.

A project of this magnitude requires a minimum of three years to design and to obtain the necessary permits. The time required obtaining the necessary funding and to acquire property may take even longer. Interim improvements were considered at two intersections on Pine Street to improve the safety of the existing route to the industrial land. Both improvements increase the available turning width for the large trucks and minimize conflicts with vehicles in the opposing lane.

E. INTRODUCTION

Over the years it has often been suggested that there ought to be a better way to get to the Burnham's Intervale area and without going through Contoocook Village. In September of 1988 a Public Hearing was held regarding proposed zoning changes. At that hearing two suggestions were made regarding improved access to the industrial area. Fred Murphy stated that "the Town should seek other ways for accessing the area. It was suggested that the Town, with the help of the Federal Government, should look into the possibility of a bridge being built across the river and connecting onto Route 127. This would cut down on the congestion in the center of the village of Contoocook." Ed McCabe suggested that maybe the 90 acres on the right going up Kast Hill Road be designated the M-1 zone. He thought a road could go through the railroad bed and connect onto Burnham's Intervale Road since that area is designated M-1. This would take care of the traffic that goes through the Contoocook Village." Alternatives B, C and E in this report meet Mr. Murphy's criteria for a river crossing and Alternative A is as Mr. McCabe suggested.

In 1998 the Town commissioned Applied Economic Research to conduct the "Hopkinton Tax Base Diversification Strategy". That study (July 1998) identified areas in Town that are suitable for development and made suggestions for zoning changes and access improvements. That study suggested that a road be constructed between Route 127 and Burnham's Intervale that starts on Route 127 just to the west of the Hopkinton Everett spillway and runs due north across farmland, bridges the Contoocook River and then ties directly into the current end of Burnham's Intervale.

In 1999 the Hopkinton Economic Development Committee commissioned this study to further investigate various possibilities of improving access to industrial areas. The first meeting to discuss possible routes was held on November 11, 1999. At that meeting various schematic routes were shown on a large map for discussion purposes. The map was developed at a scale of 1"=400 using 1981 aerial mapping (from the NHDOT). An acetate overlay was added which included tax map information from the town, wetlands information (nation wetlands inventory) and floodplain mapping (from the Office of State Planning). At the meeting six possible routes were discussed. Alternatives discussed included:

1. **Alternate A - Red line from intersection of 127 and Kast Hill to Industrial Park.** This alternative did not get high reviews because it provided access only toward Henniker and would result in trucks using 127 on the tight curves around Paper Tech.

2. **Alternate B - Blue line from 127 across a new bridge and connecting to A.** This alternative has merit due to the relatively short bridge and a connection into the railroad bed corridor bordering the River. This alternative provided better access to Exit 6 than A, but less convenient access to Henniker.

3. **Alternate C - Green line from 127 (3,000 feet east of PaperTech) north to the Industrial land.** This alternative provides acceptable access to Exit 6 and has a moderately difficult bridge crossing location. This corridor was nearly eliminated because the landowners have expressed a strong desire to leave the property as is.

4. **Alternate D - Green line from Exit 7 south along the west side of I-89 to Bound Tree Road.** This corridor stimulated interest because no bridge was involved and it would create access to land, which may be suitable for industrial development. On the down side, a new I-89 southbound off ramp would have to be constructed and negotiations with the town of Warner would have to be initiated.

5. **Alternate E - Blue line from west of the Digital Building off 127 just west of Exit 6, north across the Contoocook River through a corn field and then to the Industrial land.** This corridor provides the best access by far and impacts the least number of homes. The corridor also requires the longest bridge and impacts both wetland and a significant area of floodplain. The Committee understood the complications with this corridor, but wanted to investigate further due to its desirable access.

6. **Blue line from Kearsarge Avenue and south along the old Claremont Line railroad bed.** This alternative was eliminated due to the impacts to numerous properties and likely impacts to wetlands. The Conservation commission also now owns the railroad bed.

Other Discussion

- Pine Street: It was agreed to investigate Pine Street (look at type of curb and width of walk) and make suggestions for safety improvements.

- **Development Corridor:** By looking at the investigated corridors on a map an idea evolved that a development corridor could possible be created along the west side of I-89. Starting at Exit 7 and working south, this includes corridor E, Bound Tree Road, Burnhams Intervale Road, and (when funds became available) construct the final leg, which is alternative D or another river crossing.

- **Fair Grounds:** The possibility of relocating the Hopkinton Fair to the current industrial area property and vise versa was mentioned. This would eliminate the traffic problem on Burnhams Intervale, except for one week, and the truck traffic to the property at the old Fairground site would access from Exit 7.

F. EXISTING DEVELOPMENT IN THE INDUSTRIAL PARK

- EXCALIBER
- HERRICK MILLWORK
- BRUCE TRANSPORTATION
- GENERATION BUILDERS
- NEW KEARSARGE CORPORATION

II. PROJECT AREA AND MARKET DEMAND - by the Capital Regional Development Council (CRDC)

See Appendix A

III. DATA

A. MAPPING SOURCES AND LIMITATIONS

All of the mapping information used for this project was taken from available existing sources. Some of the electronic data sources were not in the AutoCAD format used for this project and required conversion prior to use. Provan and Lorber uses LandDesk Software that is based on and enhances the AutoCAD format. LandDesk software provides engineering add-on features that have been used in this study to develop roadway cross sections and profiles.

1. Hopkinton Tax Maps

The Town of Hopkinton recently purchased digitized tax maps in AutoCAD format from Cartographics of Littleton, New Hampshire. These maps were used as a basis for this study. Text heights for the tax maps were designed to be very readable at a scale of one-inch equals 200 feet. This study developed a map of the entire study area at scale of one-inch equals 400 feet using the same text as for the 200 scale maps. When an electronic file is scaled down by fifty percent (going from one-inch equals 200 feet to one-inch equals 400 feet) the text size is also reduced by fifty percent. This reduction produces text that is still readable, but further reductions would result in unreadable text.

2. Electronic Mapping Provided by the New Hampshire Office of State Planning

All mapping by the Office of State Planning (OSP) was provided in electronic format that was translated by OSP from their Arc View file format into a data exchange file format (dxf) that is readable by AutoCAD software. All OSP mapping is based on the 1983 North American Datum (NAD) coordinate system and was converted to the Hopkinton Tax map coordinate system which is based on the 1927 NAD. The following mapping information was provided by OSP:

Wetlands Mapping: Mapping from the National Wetlands Mapping Inventory has sufficient detail and accuracy for developing conceptual and (to some extent) preliminary plans. This mapping has limitations and should be checked by a wetlands mapping expert in areas such as bridge locations during the later stages of the next (preliminary) design phase.

Flood Maps: Floodplain and floodway boundaries for the Contoocook River throughout the study area were provided in electronic form (originally from FEMA maps). Boundary lines include the 100 and 500 Year flood limits and the defined floodway.

3. New Hampshire Department of Transportation (NHDOT) Maps

NHDOT's Bureau of Planning maintains aerial photographs (1'=400') of the entire state and contour maps for locations where mapping was developed previously for various highway projects. Aerial maps were obtained and combined to provide a base aerial map for the study area. Features shown on the aerial mapping are as of 1980.

Contour maps were not available for the entire study area. Maps were available in the vicinity of I-89 from Exit 5 to the east and from Exit 7 to the north. The contour map from Exit 7 north will be usable for the north end of Alternate D only.

4. Merrimack County Extension Service Mapping

Originals photos the aerial maps obtained on blue prints from the NHDOT are keep at the Merrimack County Extension Service. These photos were scanned to an electronic file at an accuracy of 600 dots per inch (dpi) and will be used as a background for the final exhibits.

Merrimack Counties 1961 Soil Survey was used for locating poorly drained soils in the vicinity of the proposed access alternates. It was found that the majority of the alternates are located in areas with very good soil characteristics for road construction. Pockets of soils with a high water table were primarily located along Alternate D. This information was digitized and added to the base map.

5. Federal Emergency Management (FEMA) Flood Maps

FEMA maps for the study area were provided by the Office of State Planning. Flood limits for the 500 Year flood are shown in some locations and limits for the 100 Year flood are shown in all locations. The floodway is also shown.

Floodways boundaries were developed by FEMA at specific river cross sections as part of the Flood Insurance Study conducted for the Town of Hopkinton dated May 17, 1988. The floodway is the area of greatest flow during a flood and is defined as the same volume as the 100 Year flood, but with an elevation one foot higher. Floodway maps used were updated in 1988 using the cross section limits and by interpolating between the sections for intermediate locations. The FEMA office was contacted to confirm that these maps are the most current available.

6. US ARMY CORP OF ENGINEERS MAPPING

The US Army Corp provided topographic maps developed for the Hopkinton Everett Dam in 1957. Those maps include contour intervals of 2.5 feet in flatter areas and 5 or 10 foot intervals in other areas. Elevations from these maps were used to develop old ground profiles and cross sections for critical areas.

7. COMBINING ALL MAP SOURCES INTO ONE

All of the electronic files were combined into one file for presentation graphics. Maps with coordinates different from the 1927 NAD were moved to align with features found on the Tax Maps. In most cases, the added map features were found to have a slightly different shape than the Tax Maps. After moving maps to the correct coordinates, a process called "rubber sheeting" was used to fine-tune the shape of the moved feature to align better with the Tax Map base. The end result is a map with features based on the "best available data" that have acceptable accuracy for the concept stage, but are not considered accurate or adequate for use in the next stage.

Contacts

- US Army Corps – Martin J. Curran – Contoocook Office
- Merrimack County Conservation District – Heather Ryan – District Manager
- Town of Hopkinton Tax Maps – Karen Mayo
- Office of State Planning – Ken Ghallager
- New Hampshire Department of Transportation – Steve Homer

B. TRAFFIC COUNTS

All traffic Counts were provided by the Central N.H. Regional Planning Commission. Truck percentages are from at study conducted by Richard Stricford for John Herrick.

Table 3		
Traffic Counts		
Location (All counts were taken in May of 1999)	Average Weekday Volume	Percent Trucks (Herrick Study)
Kearsarge Road North of Spring Street	1400	
NH Route 103 South of Route 127 at Brook	4000	
NH Route 127 South (West) of I-89	3200	
NH Route 103 South of the Post Office	4500	7%
Pine Street at the Fire Station	3400	14%*
Pine Street West of Bound Tree Road	1100	
Burnham's Intervale Road at Pine Street	800	
Maple Street at Orchard Way	NA	11%

Note: The average weekday traffic volume during the month of May is approximately equal to the average daily volume for the year.

* The typical truck percentage on New Hampshire residential streets is 5 percent or less.

C. HOPKINTON ECONOMIC DEVELOPMENT COMMITTEE MEETINGS

Minutes for each meeting held to discuss access routes are attached in the appendix. Meetings were held on the following dates:

November 11, 1999
December 1, 1999
January 5, 2000

IV. ACCESS ALTERNATIVE ROUTING ANALYSES

A. APPROACH AND METHODS

1. Criteria and Layout:

Each of the alternates was defined using lines and curves to define an alignment. Each curve radius was designed to meet the minimum criteria for a Major Collector road which is the highest level of road construction that is listed in Hopkinton's "Ordinance and Regulation Handbook" (last amended March 9, 1999). A major collector was used because it is the only standard with a traveled way width of 24 feet which is typically the minimum for large trucks. This standard also has a paved shoulder width of 10 feet, which enables trucks to park completely of the traveled way in the case of breakdowns. The criteria of a fifty mile per hour design speed will be used in defining alignments to provide a worse case scenario, but is recommended that this criteria be reduced to forty miles per hour to minimize impacts. Following is a list of criteria for a Major Collector:

Table 4	
Design Criteria	
DESIGN ITEM	**MAJOR COLLECTOR ROAD** (Over 2, 000 ADT)
Minimum Design Speed	50 Miles Per Hour
Maximum Grade	8 percent
Minimum Pavement Width	24 feet
Minimum Shoulder Width	10 feet
Minimum Right-of-Way Width	80 feet
Distance shoulder to ditch	6 feet
Minimum Base Course Crushed Gravel Gravel	 8 inches 16 inches

Each alignment was assigned stationing to increment distances of 100 feet which is used to describe a specific locations such as station 135+00 which is a point 13,500 feet from the beginning of the stationing. Figure A-3 shows the typical cross section which is based on the above criteria.

2. Critical Profiles and Critical Cross Sections:

In the next phase of design, continuous profiles and cross sections at 50 feet intervals will be developed for each of the alignments. This tool is used to calculate volumes of excavation and fill and to precisely define impacts. Due to the limited level of existing detail available, and because this is a very early planning phase, only critical cross sections and profiles have been developed. Critical profiles indicate that a road can be constructed at less than the maximum grade of 8 percent (for a major collector) without creating major impacts. Critical cross sections indicate the degree of impacts to each side of the road such as impacts to wetlands, buildings, the Contoocook River, etc.

3. Design for Double Sided Access:

Roads through an industrial area are typically designed so that parcels can access from both sides of the road. This feature, known as "double loading" provides twice the frontage of a single loaded facility. Double loaded areas are typically limited to those areas where other constraints such as wetlands, existing buildings, and steep slopes do not control the location of the roadway alignment.

4. Permitting Issues and Time Constraints:

The most significant permit required to construct a road is a *Wetlands Permit* (RSA 482-A) from the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau. Wetland areas are regulated by the Federal government through Section 404 provisions of the Clean Water Act. In New Hampshire, the alteration of wetland areas have been regulated since 1967. The State of New Hampshire Wetlands Bureau has been given approval by the U.S. Army Corps of Engineers (COE) to administer projects impacting three acres of wetlands or less, under the New Hampshire Programmatic General Permit. Projects impacting greater areas must obtain an Individual Permit.

The Wetlands Bureau also works with the Federal Emergency Management Agency (FEMA) and the Coast Guard with projects that include a river crossing or that impact the floodplain. FEMA will not permit construction within the floodplain unless it has been proven to their satisfaction that there are no other "practicable alternatives."

A permit known as a *Site Specific permit* is also required from the NHDES. Site Specific permits (R.S.A. 485-A: 17) are required where in excess of 100,000 square feet of area will be disturbed. A section of this permit is a Shoreland Protection Certification that states that construction within 250 feet of rivers which are fourth order or higher streams will comply with the construction requirements listed in R.SA. 483 or R.S.A.483-B. In Hopkinton, the Contoocook River is a fourth order stream (water from order 1,2&3 streams flows into forth order streams) listed under the Rivers Management and Protection Act and is therefore regulated by R.S.A. 483.

The time required for completion of a project depends on a number of factors. Those factors include:

- Availability of funding
- Community support
- Degree of difficulty in obtaining permits

Funding options and availability will be discussed in a later section.

Community support is extremely important if at any point a public hearing is required during the design process. Without that support it is likely that funding agencies will look elsewhere for favorable projects. The degree of difficulty in obtaining permits depends on the impacts and to some extent the requirements of the funding agencies.

5. Soil Conditions

Soil types for the study area are listed in the Merrimack County soil survey conducted in 1965. The predominant soil types found include Gloucester, Hinckley and Au Gres. In general, the depth to bedrock is greater than in other areas of Town. The depth to bedrock for Gloucester is greater than three feet and greater than five feet for Hinckley and Au Gres. Gloucester and Hinckley soils are ideal for development and gravel pits are typically found within the Hinckley soil type. Au Gres soils are sandy, but often include a cemented sandy layer that hold water and causes a seasonal high water table which varies from 0 to 6'. The cemented layer can be removed artificially to drain the soil and make it suitable for development.

6. Wetland Impacts

Wetland impacts, listed for each of the routes, on the Alternative Comparison Matrix (Table 5) are shown in acres impacted with an 80 foot wide swath. The wetlands were located using the National Wetlands Mapping Inventory (NWIM) mapping which includes only the major wetlands. Prior to picking a final route and obtaining a wetlands permit a more accurate method of identifying wetlands will be required. It is

expected that the area of wetland impacts will increase as a result of intensive mapping.

7. Floodplain Impacts

FEMA mapping shows the boundaries for the 100 Year flood, the 500 Year flood (in some areas where it applies) and the floodway. The floodways widths were calculated using a sophisticated hydro-geologic modeling program known as the Army Corp of Engineers (ACOE) HEC-2 backwater program.

TABLE 5						
HOPKINTON INDUSTRIAL ACCESS STUDY						
ALTERNATIVE COMPARISON MATRIX						
ITEM						
LETTER ALTERNATE	**A**	**B**	**C**	**D**	**E**	**F**
COLOR NAME	RED	BLUE	GREEN	GREEN	BLUE	
LOCAL NAME	KAST HILL	PAPERTECH	NH 127 (MIDDLE)	EXIT 7	EXIT 6	NEAR TERM
ALTERNATIVE TOTAL LENGTH	13,500	11,040	8,900	9,000	5,550	
(FEET)/ LOCATION	DAM TO BI	127 TO BI	127 TO BI	EXIT 7 TO BT	127 TO BI	
ALTERNATIVE TOTAL LENGTH (MILES)	2.6	2.1	1.7	1.7	1.1	
BRIDGE LENGTH (FEET - SPAN PLUS 100')	NA	290	400	NA	350	
OTHER ROADS				1500' (RAMP)		NEAR TERM
ROAD LENGTH THROUGH FLOODWAY	NA	NA	NA	NA	1200'	
LENGTH OF ROAD CONSTRUCTION	13,500	10,750	8,550	9,000	4,000	
(FEET - OUTSIDE FLOODWAY)						
PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST (MILLLION $)	$2.2	$4.6	$4.0	$1.8	$8.8	$0.1
RIGHT OF WAY (80' WIDE) ACRES	24.8	19.7	15.7	16.5	7.4	
RIGHT OF WAY COST IN MILLION $ AT $20k/ACRE	$0.5	$0.4	$0.3	$0.3	$0.1	
# OF HOUSES TAKEN	1	1	0	0	0	0
HOUSE ACQUISITION COST @ 0.15M EA.	$0.15	$0.15				
TOTAL ROAD COST (MILLIONS $)	$2.8	$5.1	$4.3	$2.1	$8.9	
DISTANCE TO EXIT 6 FROM MIDDLE OF INDUSTRIAL AREA	5.1	4.1	3.1	7.2	1.6	2.9
TRAVEL TIME TO INDUSTRIAL AREA (MINUTES)						
FROM EXIT 5	9.0 (via 202)	8.0	6.5	11.5	5.0	
FROM EXIT 6	8.0	6.0	4.5	10.0	3.0	6.0
FROM EXIT 7	11.0	9.2	8.0	6.0	6.0	
# OF PARCELS IMPACTED	18	16	9	8(NEW CONST) / 11TOTAL	4	
PREDOMINANT SOIL CHACTERISTIC	GOOD	GOOD	GOOD	SOME HIGH WATER TABLE	GOOD	
WETLANDS IMPACTED (ACRES BASED ON NATIONAL INVENTORY (ACRES)	0.06	0.32	0.1	0.48	0.18	NA
ADDED VALUE						
RESIDENTIAL ZONE FRONTAGE	10000	6000	3000	0	0	NA
INDUSTRIAL ZONE FRONTAGE	9000	9000	7400	11850	0	NA
DEVELOPMENT ACREAGE CREATED (WITH 200' DEEP LOTS)	87.2	68.9	47.8	54.4	0.0	
VALUE PER LOT CREATED AT 20K/ACRE	$1.7	$1.4	$1.0	$1.1	$0.0	
NET COST (MILLION $)	$1.1	$3.8	$3.4	$1.0	$8.9	

Roads can be constructed within the 100 and 500 Year flood areas as long as a volume equal to the volume of the material required to construct the road can be excavated to maintain the existing flood storage volume at another location. This volume must be at the near same elevation as the existing storage area. Constructing a road within the floodway is not permitted unless the floodway is cross with a bridge. The volume required for the bridge abutments must be accounted for by widening the floodway, which in turn increases the length of the required bridge.

A number of permits are required prior to constructing a bridge through a floodway. The exact list depends on what sources that will be used to fund the road construction. In any event, a permit is required from the Army Corp of Engineers. Prior to the Corp's issuing a permit the flood storage issue must be resolved and documentation is required to show that there is no other "practicable alternative" to crossing the floodway at this location. The required documentation is defined within the Presidents Executive Order 11988 and includes an eight step process. Further information concerning floodplains can be obtained by contacting Jason Stone at the New Hampshire Department of Transportation.

B. ROADWAY AND BRIDGE CROSSING OPTIONS EXPLORED

1. ALTERNATIVE A

- Route:
  Alternative A begins on Route 127 at the intersection with Kast Hill Road and the west end of the Hopkinton-Everett Dam near the westerly end of the study area. A four way intersection would be created with the southerly and easterly legs being existing Route 127. The third leg would be created by rerouting Kast Hill Road to approach the intersection from the west. Alternative A would be the fourth leg starting at the current location of Kast Hill Road then running north and traversing down along the river bank at a grade of eight percent, across the steep section of Kast Hill Road and then turning east parallel to the old railroad grade. The route then runs parallel and north of the railroad grade to avoid an area of wetland. East of Clement Hill Road the route ties back onto the railroad grade, which it follows to the industrial park. The total length of roadway construction is 2.6 miles from the Hopkinton-Everett Dam to Burnham's Intervale.

- Critical Areas
  A profile and a critical cross section were developed to show how Alternative A traverses the bank of the Contoocook River. Figure A-1 shows the location of the profile and critical section in plan view at a scale of 1"=200'. Figure A-2 shows the road profile with a maximum grade of eight percent (maximum for a Hopkinton Major Collector route). Figure A-3 is the critical section shown at a scale of 1"=40'. The critical section

shows that the road can be constructed without undermining existing Clement Hill Road (a.k.a. Kast Hill Road) or filling over the existing railroad bed.

- Impacts
  Alternative A crosses Clement Hill Road between two houses and in the area of wetlands. The exact roadway location is beyond the scope of this study, but it is likely that one of the two houses may have to be acquired for this alternative if the wetlands are to be avoided.
- Cost
  Table 5, Alternative Comparison Matrix shows the preliminary Opinion of Probable Cost (OPC) for the entire envisioned roadway, including construction, land and design is at $2.8 million. If the value of new frontage is considered the net OPC is reduced to $1.1 million.

- Travel Time from I-89
  Based on average travel speeds for automobiles, the time required to travel from Exit 6 to the middle of the industrial area is 8 minutes, from Exit 5 it is 9 minutes and from Exit 7 it is 11 minutes.

2. ALTERNATIVE B

- Route
  Alternative B begins at Route 127 opposite the easterly most drive to the PaperTech Plant. From 127, Alternative B runs north across a new bridge over the Contoocook River to a point near the intersection of Clement Hill Road and Bailey Road. The route then runs north along Clement Hill across the railroad grade and then turns to the east over a wetland and then joins the route for Alternate A, along the old railroad grade. Figure B-1 (1"=200') shows the layout of Alternate B from the beginning to where it ties into Alternate A near the old railroad bed. Figure B-2 (1"=400') shows the layout at a scale of 1"=400' from the beginning into the industrial area. The total length of roadway construction is 2.1 miles from PaperTech to Burnham's Intervale.

- Critical Areas
  Figure B-3 is a profile of Alternate B at a scale of 1"=200' horizontally and a scale of 1"= 40 vertically. The profile indicates, that if the existing intersection of Bailey Road and Clement Hill Road is left unchanged the bridge crossing the Contoocook River would have a grade of 4.2 percent. This grade is steeper than the recommended 2 percent grade for the intersection with 127. In order to accommodate the recommended 2 percent bridge grade, it will be necessary to reconstruct the intersection of Bailey Road and Clement Hill Road and lower the elevation by approximately five feet.

- Impacts
  Alternate B requires the acquisition of one home located south of Clement Hill Road and west of Bailey Road. Telephone equipment located in this area would also have to be relocated. An area of 0.3 acres of wetlands are impacted just to the north of the railroad grade.

- Cost
  Table 5, Alternative Comparison Matrix shows the preliminary Opinion of Probable Cost (OPC) for the entire envisioned roadway, including construction, land and design is at $5.1 million. If the value of new frontage is considered the net OPC is reduced to $3.8 million.

- Travel Time to Exit 6
  Based on average travel speeds for automobiles, the time required to travel from Exit 6 to the middle of the industrial area is 6 minutes, from Exit 5 it is 8 minutes and from Exit 7 it is 9.2 minutes.

3. ALTERNATIVE C

- Route
  Alternative C begins on Route 127 approximately 0.7 miles east of the Covered bridge over the Contoocook River at a point where Route 127 is elevated above the floodplain. Alternative C runs north along the east side of the Contoocook River along a ridge which is ten feet or more above the 500 Year floodplain designation. The envisioned route crosses the Contoocook River 3,500 feet north of Route 127 at a point where the floodway is very narrow relative to the floodway width east and west of this point. The route turns to the east approximately 1,600 feet north of the River and then joins the route of Alternates A and B. The total length of roadway construction is 1.7 miles from Route 127 to Burnham's Intervale.

- Critical Area
  Figure C-1 shows the location of the entire Alternative in plan view at a scale of 1"=500'. Figure C-2 shows the location of the Alternative in plan at the River Crossing at a scale of 1"=200'. Figure C-3 shows the profile of the Alternative at the River Crossing at a scale of 1"=200' horizontally and 1"=40' vertically. The profile view shows that the route can be constructed with a moderate two percent grade.

- Impacts
  Alternative C crosses prime farmland on both sides of the Contoocook River, the 100-Year floodplain and a short area of the floodway. Construction of a road within the 100-Year floodplain requires that the road be elevated above the floodplain and that the lost flood storage volume be replaced or mitigated. The road within the floodway must be elevated on a bridge and not constructed on fill.

  Property owners on the south side of the River have previously expressed a desire to maintain their farm as it exists. Construction of this section of road will reduce the area of useable farmland.

- Cost
  Table 5, Alternative Comparison Matrix shows the preliminary Opinion of Probable Cost (OPC) for the entire envisioned roadway, including construction, land and design is at $4.3 million. If the value of new frontage is considered the net OPC is reduced to $3.4 million.

- Travel Time to Exit 6
  Based on average travel speeds for automobiles, the time required to travel from Exit 6 to the middle of the industrial area is 4.5 minutes, from Exit 5 it is 6.5 minutes and from Exit 7 it is 8 minutes.

4. ALTERNATIVE D

- Route
  Alternative D begins near the northern edge of the study area at I-89 Exit 7. The envisioned route is shown on Figure D at a scale of 1"=1000'. This alternative requires that a new southbound on ramp be constructed nearer to I-89 to replace the existing ramp with the current on ramp converted a two lane road, which will become the northerly portion of the industrial access road. Starting at the existing southbound on-ramp, Alternate D runs along the existing ramp turning away from I-89 near the southerly end of the manufactured home park, then running parallel to the I-89 and west of the southbound lane until it ties into Bound Tree Road. The corridor then proceeds along Bound Tree Road and Burnham's Intervale Road to the Industrial Park. Minor realignment of the intersection of Bound Tree Road

is required so those vehicles can proceed directly across Pine Street at the intersection with Burnham's Intervale Road.

The total length of roadway construction is 1.7 miles from I-89 Exit 7 to Bound Tree Road.

- Impacts
  Critical areas along Alternate D are wetlands and soils with cemented layers, which result in a high seasonal water table. The majority of the route is virtually level with an occasional hill. The final alignment of Alternate D will be set to avoid wetlands mapped using high intensity wetland methods under a later project phase. Based on the available mapping, the wetland impact for this Alternative is 0.5 acres. This alternative runs through an area which has not been developed previously and which has not been identified as being developable.

- Cost
  Table 5, Alternative Comparison Matrix shows the preliminary Opinion of Probable Cost (OPC) for the entire envisioned roadway, including construction, land and design is at $2.1 million. If the value of new frontage is considered the net OPC is reduced to $1.0 million.

- Travel Time
  Based on average travel speeds for automobiles, the time required to travel from Exit 6 to the middle of the industrial area is 10 minutes, from Exit 5 it is 11.5 minutes and from Exit 7 it is 6 minutes.

5. ALTERNATIVE E

- Route
  Alternate E begins at NH Route 127 just 2,000 feet west of I-89 at Exit 6. From Route 127, the route runs north along the west side of the Compaq Warehouse and then bridges over the Contoocook River to a an active corn field. The route then traverses across the field and then turns to the west to cross Burnham's Intervale Road at a right angle and then continues west to the current industrial drive. The total length of roadway construction is 1.1 miles from Route 127 to Burnham's Intervale.

- Critical Area
  Figure E-1 shows the route in plan view at a scale of 1"=400'. To the north of the Contoocook River the route crosses through a cornfield of which a 1,200 feet is within the river floodway. Figure E-2 shows the profile of the Alternative at the River Crossing at a scale of 1"=400' horizontally and 1"=80' vertically. The profile view shows that route raised in both the floodway and in the floodplain. Due to Army Corp regulations, roads within the floodway can not be constructed on fill and must be constructed

on a viaduct type of bridge. The OPC for Alternate E assumes the floodway is crossed using a short-span bridge design. The road section constructed in the 100 Year floodplain is proposed to be constructed on fill, with an equal amount of flood storage added at another location to be defined during a later project phase.

Figure E-3 shows an alternative to the viaduct bridge discussed above. With the scenario shown on E-3 the roadway is constructed at the existing grade so that the volume of the floodway is not reduced. The advantage with this alternative is that the estimated cost is reduced from $8.9 million to $4 million. The disadvantage is primarily that the road will have to be closed during periods of flooding. Other disadvantages include difficulties with drainage and deterioration of the pavement if it carries heavy loads when the base is saturated and weak.

- Impacts
  Alternate E runs diagonally across an active cornfield for a distance of 3,100 feet. Based on an average right-of-way width of 80 feet this translates to approximately 6 acres of lost farmland. The loss of farmland, which in this case is most likely prime farmland, can disqualify the project from many of the federal funding programs available to communities.

- Cost
  Table 5, Alternative Comparison Matrix shows the preliminary Opinion of Probable Cost (OPC) for the entire envisioned roadway, including construction, land and design is at $8.9 million. No new industrial frontage is created with this alternative. The cost is reduced to $4 million if the road is constructed at the existing grade and is subject to periodic flooding.

- Travel Time to Exit 6
  Based on average travel speeds for automobiles, the time required to travel from Exit 6 to the middle of the industrial area is only 3 minutes, from Exit 5 it is 5 minutes and from Exit 7 it is 6 minutes. This alternative has the best travel time characteristics.

C. NEAR TERM IMPROVEMENTS TO PINE STREET

Intersection Widening Locations:

1. Intersection of Pine Street and Kearsarge Street:

Pine Street intersects Kearsarge Street just to the north of the Fire Station and to the south of the Merrimack County Telephone building. The intersection is shown at a scale of 1"=40' on figure NT-1.

Large trucks traveling to/from the industrial area turn through the intersection, going around the Fire Station. In making this turn, large tractor-trailer sized trucks require virtually all of the available pavement width and are forced to cross over onto the opposing travel lane, creating an undesirable situation.

The alignment of Pine Street with the short connector road to Route 127 (between Kearsarge and Route 127) do not align directly opposite each other and the roads are offset by over one lane width with Pine Street being to the south of the connector road. In order for a large truck to cross Kearsarge Street from Pine Street to Route 127, a truck must occupy the westbound lane and then has to turn slightly to the left before making the crossing. With the eastbound truck in the westbound lane, vehicles turning left are forced to wait for the truck to complete the maneuver.

Figure NT-1 shows a suggested improvement that adds enough pavement to the intersection so that large trucks can make the turn around the Fire Station without crossing the opposing travel lane on either street. By realigning Pine Street to the north the extra width can be achieved without relocating the utility pole located near the Fire Station. This utility pole has wires extending in four directions. Utility poles with complex wire arrangements, such as on this pole, typically cost on the order of $20,000 to replace. In addition, no solutions for relocating this pole were found to be readily evident. By realigning the intersection, trucks traveling from Pine Street to Route 127, can cross Kearsarge without making the existing jog and crossing into the opposing travel lane. The sketch shows the connector road realigned to help the alignment. An old granite fence along the connector road may be considered historic and prohibit this realignment. By just relocating Pine Street, the alignment will be greatly improved.

Currently the sidewalk on Pine Street begins to the west of the Telephone Company building with no link to the Kearsarge Street sidewalk. A row of shrubs line the existing property line in the area adjacent to the road. The Pine Street sidewalk needs to be extended and connected to the Kearsarge Street sidewalk and crosswalks are needed to cross both streets. Construction of the road widening and the sidewalk both require that land be acquired from Merrimack County Telephone.

2. Intersection of Pine Street and Burnham's Intervale Road:

Figure NT-2 shows the intersection of Pine Street and Burnham's Intervale Road at a scale of 1"=40'. With the existing available pavement width, large trucks traveling from the industrial area toward Contoocook can not make the turn without encroaching into the westbound traveled way of Pine

Street. The sketch shows a proposed turning radius of 50 feet, which would enable large trucks to make this turn without encroaching onto the westbound lane on Pine Street. A preliminary investigation indicates that this improvement can be made without the purchase of additional right-of-way and an impact of approximately five feet wide. A construction easement may be required to regrade the lawn of the adjacent property.

3. Sidewalk Improvements:

Figure NT-3 shows the a typical cross section for improvements to Pine Street at a scale of 1"=4'As stated above, the sidewalk on Pine Street should be connected to the sidewalk on Kearsarge Street. The current layouts requires that people walking, from the village or from Kearsarge Street, walk across a relatively wide section of roadway in the middle of an intersection without the benefit of a crosswalk or even a sidewalk.

It is likely that pedestrian traffic on Pine Street has increased recently due to the new Town Library. Currently, between the Library and Kearsarge Street, Pine Street has a four-foot wide bituminous sidewalk and 26 feet of traveled way separated by a six-inch bituminous concrete curb.

The minimum sidewalk width, under any circumstances should be 5 feet. With heavy truck traffic and significant pedestrian traffic, it is suggested that five feet of sidewalk width plus an additional two or three feet of separation (tree-lawn) be provided between the sidewalk and the curb. Use of a granite curb is recommended with a seven inches exposed to provide more protection to pedestrians from errant vehicles. Additional width required for two twelve-foot wide travel lanes and as much shoulder width as possible (a minimum of two feet on each side) may be available along the south side of the road. The suggested layout developed during this sketch plan phase requires the addition of a minimum of five feet of width with the following breakdown:

Sidewalk	1.0'
Tree-lawn	2.0'
Additional shoulder width	2.0'
Total	5.0'

In order for the suggested improvements to Pine Street to be constructed a project needs to be initiated and funding appropriated. This rehabilitation type of project is typically designed in a single phase with items such as survey, final design plans and construction documents part of the scope of services.

V. COMPARISON OF ALTERNATIVES

A. IMPACTS

Alternatives A and B both require that one home be acquired. None of the other Alternatives require acquisition of homes. This relatively small impact to existing development found at this time indicates that a corridor should be developed as soon as possible and so that no significant developments are constructed that would create hardships to a greater number of people if they were to displaced.

The greatest wetland impacts were found for Alternative D with 0.5 acres, then Alternative B with 0.3 acres and less than 0.2 acres for each of the other alternatives.

Farmland impacts were identified with Alternates C and E. The area impacted for both alternatives is considered *prime* farmland with typically deep rich top soil which is characteristic of farms located near or in a floodplain. Approximately 6 acres of farmland would be lost for each of Alternative C and E.

Floodway impacts were identified only for Alternative E. Impacts to the floodway are reflected in the cost of the Alternative in that a floodway must be bridged and not simply filled in.

Impacts to floodplains were identified for Alternatives C and E. The floodplain may be filled to a level suitable for road construction above the 100-Year flood elevation and a permit must be acquired from the Army Corp of Engineers. The volume of flood storage taken for the road fill must be mitigated at an approved location. Preliminary cost estimates do not include mitigation costs.

B. OPINION OF PROBABLE COST (OPC) FOR THE PROJECT

The preliminary opinion of probable costs (OPC) for the complete construction project range from as high as $8.9 million for Alternative E to $2.1 million for Alternate D. The major cost factor is the length of bridge required to cross the Contoocook River and the adjacent floodway. Alternatives B and C, with bridges of 290 feet and 400 feet in length respectively, are estimated at $4.1 and $4.3 million. Alternatives A and D, without bridges, are estimated at $2.8 and $2.1 million respectively. Alternative E requires bridges totaling over 1,500 feet in length with an estimated cost of $8.9 million.

The bottom line of the Alternative Comparison Matrix lists the net OPC for each Alternative. Net OPC's were derived by deducting the increased value of the land (with the new access) from the cost of the access road. It was assumed that industrial lots of two hundred feet in depth would be created along the access road and that the lots created would increase the value of the land by $20,000 per acre. Areas within the floodplain or the floodway, lots adjacent to the river and wetlands were not included. Net OPC's were lower than Alternative OPC's for all but Alternative E, which does not create any usable access frontage. The following net costs were estimated:

Alternative A: $1.1 million
Alternative B: $3.8 million
Alternative C: $3.4 million
Alternative D: $1.0 million
Alternative E: $8.9 million (4.0 million if subject to flooding)

C. TRAVEL TIME

Travel time to the industrial area was estimated from interstate route I-89 at Exits 5, 6 and 7. All of the travel times are listed on the Comparison Matrix. The existing travel time from Exit 6 (through the village) was measured at 6 minutes. Alternative E had by far the shortest travel time from each of the three exits with estimates of 5, 3, and 6 minutes from Exits 5, 6 and 7 respectively. Alternatives B and C had travel times from Exit 6 of 6 and 4.5 minutes respectively, which are equal to or less that the existing route travel time. Alternatives A and D had travel times from Exit 6 of 8 and 10 minutes respectively which are greater than for the existing route.

Estimated travel times greater than for the existing route indicate that the Alternative may not be used unless truck traffic is prohibited on the existing route. Choosing an alternative that requires prohibiting truck traffic is not recommended because it creates a situation where the temptation may be created which encourages the driver to ignore the posting. Choosing a route that is faster that the existing route will encourage its use without regulation.

VI. FINANCING STRATEGIES

The Capital Region Development Council will provide financing strategies if it is decided that the project will carry one or more alternatives presented here to the Preliminary Design Phase. Strategies will be provided in memo form at that time. The following grants are some of those that will be explored if the project continues.

A. COMMUNITY DEVELOPMENT BLOCK GRANT

B. GRANT PROGRAMS

C. TAX INCREMENT FINANCING

VII. CONCLUSIONS AND RECOMMENDATIONS

A. RECOMMENDED ROUTES FOR FURTHER STUDY

A comparison matrix (Table 5) includes the total opinion of probable cost of each alternative and the net cost after deducting the increased value of the land due to the new road. Travel times shown were estimated for each alternative from the industrial land to I-89 Exits 5, 6, and 7. The matrix shows that the routes with the shortest travel time from I-89 are the most expensive to construct and created the least amount of new industrial frontage.

The market demand analysis concludes that direct interstate access is essential to promote the industrial area as an Interstate Business Park. Alternatives C and E, which have estimated travel times from Exit 6 of 4.5 minutes and 3 minutes respectively, are the only alternatives that meet the definition of "direct interstate access". Due to the impacts and cost associated with Alternate E, this report recommends that Alternate C be carried to the next phase as the preferred alternative. The process can proceed with one alternative or it can carry all five and an alternative can be reinstated at any time. It is suggested that one or two other alternatives be carried forward in the event that unforeseen impacts become evident with Alternate C. Alternate D should be carried in that it has the greatest long term potential for commercial development and has the lowest cost. Alternative E should be carried forward because it provides the best access and a low cost construction alternative may be acceptable that will make it more viable from a cost perspective.

The Hopkinton Fair Grounds has been discussed as a possible alternative to the Burnham's Intervale area for development as an industrial park. The Fair grounds could be relocated to Burnham's Intervale and the associated access problems would be limited to the days when the Fair is open. Access to the Fairgrounds is not direct to I-89 via Exit 7 in Warner, but the route avoids the village and local streets with access via State Routes 103 and 127. Costs for this alternative are primarily for reconstruction of the Fair Grounds and for reconstruction of businesses already in operation in Burnham's Intervale. Cost to improve the access for Fair traffic to the Burnham's Intervale should also be considered. This report has not addressed this option to the extent that it is recommended as an alternative to carry to the preliminary design phase.

B. PRELIMINARY DESIGN PHASE

In the next phase, known as the "preliminary design phase" a preferred alternate is chosen which is carried to the "final design phase" where detailed construction plans are developed. Some of the work efforts that are typically part of the "preliminary phase include:

- Detailed Mapping via aerial photography of each alternative route carried forward
- Development of plans at a scale of 1"=200' that show complete intersection configurations and lanes
- Development of complete roadway profiles
- Plotting of all critical cross sections and development of electronic cross sections at 50' intervals to establish slope impact lines
- Preliminary cost estimates (accounting for volumes of excavation, but not as detailed as in the final phase)
- Determine more precise areas of impacts to wetlands, property owners, etc.
- Determine which houses and properties to be taken
- Recommend a preferred alternative to carry forward to final design
- Address permit issues with environmental agencies

APPENDIX
A

II. PROJECT AREA AND MARKET DEMAND - by the Capital Regional Development Council (CRDC)

A. Project Area

The focus of this study is the Burnham-Intervale area north of the Contoocook River. This area represents the largest contiguous area with prime development potential in the Town of Hopkinton.[1] It contains approximately 374 acres of primarily vacant land with generally well-drained soils. Moreover, approximately 173 acres, or 46% of the total land area is owned and/or controlled by a single individual who has indicated an interest in developing a business/industrial park on the property.

Development of the area historically has been hindered by several physical constraints, which are summarized below.

1. Highway Accessibility

The Project Area is not easily accessible from I-89, although interchange 6 is less than one mile away. From Interchange 6 the area is presently accessed through Contoocook Village via Pine and Maple Streets. Aside from being hazardous, this route is not conducive to the successful development of an interstate-oriented business/industrial park, since:

- The current route through Contoocook Village can be difficult and time-consuming, especially for trucks, since:

  (a) On the in-bound route there area four turning movements, including three left turns, two of which occur in the Village Center; and

  (b) There is significant potential for vehicle/pedestrian and/or vehicle/vehicle conflicts, especially during peak hours.

- There are several interstate-oriented business/industrial parks in the market area that have more direct access. See Section B, below.

2. Wastewater Disposal

The Project Area is not served by a municipal sewer system. The wastewater treatment plant is located **upgradient** of the project area and has a limited available capacity of about .06 MGD. Moreover, the treatment plant is not designed for treating industrial discharges.

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[1] See Hopkinton Tax Base Diversification Strategy, Applied Economic Research and Whiteman and Trainton (1998)

The lack of wastewater treatment will present the following financial impediments to the development of the park:

- Potential businesses will be required to purchase more land in order to accommodate septic systems. The savings attributable to a lower land cost/acre are often less than the cost-efficiencies of a dense lot coverage and further off-set by maintenance expenses attributable to septic systems.

- It has been CRDC's experience that new buildings located in business/industrial parks without full services (i.e., water, sewer, power, natural gas) *tend to be valued at less than cost.* Since the amount of financing that can be provided by banks and CRDC is based on the lesser of cost or value, a deficient appraised value (i.e., a market value of less than cost) must be made up with additional owner equity. For example, for land and building that cost $500,000 and appraises at $500,000 at a "full-service" park, CRDC and a participating bank usually can provide 90% financing or $450,000 via the SBA 504 program. Borrower's equity requirement is 10% or $50,000. If the same development is located at a limited-service park and appraises for 10% less, or $450,000, the maximum Bank/CRDC loan is $405,000 (90% of *value*) and the borrower must inject equity of $95,000 or 19% of cost. This represents a 90% <u>increase</u> in the equity requirement that would be required in the comparable case.

- Facilities located in "full-service" parks tend to appreciate at a greater rate (currently 2% - 4% per year) than those located in a limited service park (generally 1% or less per year). Hence a facility located in a limited service park may require 10 or more years of appreciation before its value equals original cost.

- Due to these factors, as well as the *perceived* unreliability of septic systems, borrowers may tend to build lower-cost buildings. This equates to a lower tax value per acre of developable land. CRDC experience indicates that new buildings in limited service areas such as Bow and Loudon may be assessed for about 50% - 70% of similar buildings located in full-service parks. For example, the five largest industrial buildings located in Hopkinton contain 218,640 square feet of space and have a current assessed valuation of $5,878,400 *or only $26.89 per square foot.*[2]

[2] Sample assessment data provided by Karen Robertson, Planning/Zoning Coordinator for the Town of Hopkinton.

3. Water Service

Municipal water service is provided to the Burnham-Intervale area via a 12-inch main that was extended to the New Kearsarge Corporation building in 1997. Further extensions would be required into the site of a proposed business/industrial park. The precinct has a primary storage tank, located on Bound Tree Road of approximately 425,000 gallons. A secondary storage tank, which is used for emergency supply (not fire-fighting) has a capacity of about 300,000 gallons. A representative of the Contoocook Village Precinct reports that the system exhibits a static pressure of 125 psi in the Burnham-Intervale area. Additionally, available fire flows are reported to be 1,100 to 1,300 gpm for 3 – 5 hours while maintaining adequate residual pressure. [3]

The reported fire flows and emergency storage capacity are generally acceptable for sprinkler systems in buildings. However, these flows are below the Insurance Services Office (ISO) recommended standard of 1,500 gpm. This condition may cause slightly increased hazard insurance premiums for properties in the area. However, many commercial buildings are located in areas with fire flows that are significantly below ISO recommended standards. Therefore, our experience does not indicate that this condition will be a major disincentive to businesses that desire to locate in the project area.

4. Electric Power

Electrical service is provided to the area by Public Service Company of New Hampshire. Three-phase service, which is the maximum requirement for most industrial applications, is currently available on Burnham-Intervale Road.

5. Natural Gas

There is no natural gas service in the project area. Excalibur, Herrick Millworks, and New Kearsarge Corporation all purchase bulk propane, which is stored on site. Due to cost efficiency piped natural gas is preferred by most companies that utilize it for either heat or processing. The lack of such service, which is available in several parks in the market area, could be a disincentive to some businesses to locate in the area.

6. Communications Infrastructure

Merrimack County Telephone Company presently serves the Town of Hopkinton. Enhanced business telephone services and digital switching are available to the project area. However, data communication is currently provided on ISDN lines capable of maximum transmission capacity of only 128 kbs. The company plans to install ADSL lines to the area by the end of the year. These new lines will be capable of transmitting data at up to 1,540 kbs, a 1200% increase in speed. This enhanced level of service should meet the needs of almost all businesses that may desire to locate in the area and could be a major marketing advantage for the park, since it compares very favorably to the level of service offered in Concord and elsewhere.

[3] Per telephone conversation with Steve Clough on May 15, 2000

B. Market Demand

There are several factors that will influence the ability of the Town of Hopkinton and the Hopkinton Economic Development Committee to attract new and/or expanding businesses to a business park in the Burnham - Intervale area. These factors include the presence of competing business/industrial parks in the market area and the lack of adequate support infrastructure (i.e., sewer and interstate access).

1. Competing Business/Industrial Parks

Data presented in Table 1 summarizes the status of competing industrial/business parks located in the Concord/Merrimack County market area. These data include three parks (Franklin Industrial Park, Exit 10 Park in Hooksett, and Canterbury Business Park) that are either under construction or planned for completion within 12 months.

Table 1

Characteristics of Competing Business Parks

Concord/Merrimack County Market

Name	Location	Available Acres	Accessibility and Support Services					Comments
			Drive Time (1)	Water (2)	Sewer (3)	Power (4)	Gas (5)	
Full Service Parks								
Airport Business Park	Concord Regional Drive	12	3 minutes to I-393	Yes	Yes	Yes	Yes	*20-acre expansion planned in Fall of 2000*
Franklin Industrial Park	Franklin Route 3	50	> 15 minutes to I-93	Yes	Yes	Yes	NA	*Pending construction. Will extend roads, water, sewer for tenant.*
Exit 10 Park	Hooksett Route 3A	185	>1 minute to I-93	Yes	No	Yes	Yes	*Construction is underway.*
MS&G Industrial Park	Hooksett Route 3	80	10 minutes to I-93	Yes	Yes	Yes	Yes	
Commerce Park	Pembroke Route 106	12	5 minutes to I-393	Yes	Yes	Yes	Yes	
	Total Acres:	**339**						
Limited Service Parks								
Fillmore North	Loudon Route 106	790	15 minutes to I-393	No	No	Yes	Yes	
Eastpoint Industrial Park	Hooksett Eastpoint Drive	80	5 minutes to I-93	Yes	No	Yes	No	
Belmont Industrial Park	Belmont Route 140	43	20 minutes to I-393	No	Yes	Yes	No	
Tallwoods Park	Bow Route 3A	14	15 minutes to I-93	No	No	Yes	No	
Canterbury Business Park	Canterbury I-93 (Exit 18)	30	>1 minute to I-93	No	No	Planned	No	*Planned for completion within 12 months. Abuts rail.*
	Total Acres:	**957**						

Sources: CRDC data and *New Hampshire Business Review*, December, 1999

Notes

(1): Estimated normal driving time to nearest interstate interchange.

(2): Availability of municipal water with adequate pressure and fire flows.

(3): Availability of municipal sewage treatment with adequate reserve capacity.

(4): Availability of 3-phase power at site.

(5): Availability of piped natural gas.

As indicated therein "full service" parks are classified as those sites that provide at least three of the following four services: municipal water supply, municipal sewage treatment, three phase electrical power, and piped natural gas.[4] Data provided in the table indicate that:

- There are five "full-service" parks in the market area. These parks list 339 acres of land for sale.

- There are also five "limited service" parks that list 957 acres of land for sale.

- Driving time to an interstate interchange ranges from less than 1 minute (Canterbury Business Park) to 20 minutes (Belmont Industrial Park. Of the ten parks listed, only half (Airport Business Park/Concord, Exit 10 Park/Hooksett, Commerce Park/Pembroke, Eastpoint Industrial Park (Hooksett), and Canterbury Business Park) can claim "access to interstate" as a distinct locational advantage.

While there appears to be adequate land to service projected industrial growth in the region, there is at least one recent development that may affect Hopkinton's opportunities for success. As indicated, the two full-service parks located in Hooksett contain 235 acres, or 69% of the total "full-service" acreage in the market area. Voters in Hooksett recently defeated a bond issue to upgrade sewage treatment capacity and extend sewer service to the Exit 10 Park. Further, it is unclear whether there is adequate treatment capacity to support continued industrial growth in the town. Therefore, the effective amount of available land within "full service" parks may be reduced to 104 acres.

Regarding limited service parks, we are aware that the Eastpoint Industrial Park in Hooksett, the Belmont Industrial Park, and the Tallwoods Park in Bow have had some limited success in attracting tenants despite limited infrastructure. For example, CRDC has provided financing to three different tenants of the Tallwoods Park over the past five years and the park has attracted at least one new tenant per year during that time frame. However, most of the tenants at Tallwoods and the other limited-service parks are located in smaller buildings (generally less than 10,000 square feet) and *do not define interstate access as a primary location determinant for their business*. We know of several larger businesses that did not choose these locations because of the lack of direct interstate access.

We believe that the Burnham-Intervale location could compete effectively with the "limited service" parks in the event that the facility could be promoted as an "Interstate Business Park". Thus, a *direct* access to I-89 must be constructed. The only *direct* access alternatives presented in the feasibility study are Alternatives C and E, which have estimated travel times from Exit 6 of 4.5 minutes and 3.0 minutes respectively.

[4] Please note that data regarding communications infrastructure are not available in published form.

2. Municipal Sewer System

Aside from presenting financial impediments discussed earlier, the lack of a municipal sewer system will limit the market demand for lots at a potential park to be located in the Burnham-Intervale area. Specifically, the location will not attract manufacturers that utilize *process water and/*or *generate significant wastewater requiring treatment.* Examples include:

- Food processing and bottling;
- Paper and paper products;
- Steel and metal products;
- Some semi-conductor manufacturing;
- Some fabricated metal manufacturing; and
- Some machining and tooling operations.

In addition, the site would not be appropriate for significant generators of domestic waste. Examples would include:

- Businesses that employ a 100 or more employees in several shifts on small (i.e., 5 acres or less) lots; and

- "Back-office" operations where buildings house more than one employee per 150 square feet.

Provided that direct interstate access is provided, the proposed park should be successful in attracting *horizontally oriented manufacturers* as well as *regional warehousing and distribution operations.* Horizontally oriented manufacturers are similar to those companies already located in the area. Typically, these types of manufacturers do not require wastewater treatment and/or process water, but they are large power users and desire direct interstate access. Equally important, they require space (i.e. reasonably priced land) to house operations and store inventory. Within the market area the size of these facilities will range from 10,000 to 40,000 square feet at a new construction value of $35 to $70 per square foot.

Developers of regional warehousing and distribution operations also value reasonably priced land but put a premium on direct access to the interstate. They also require adequate water supply for fire protection but do not put a large demand on other municipal services. Typically, these facilities generate relatively few jobs in relation to the value of the real estate. Hence, they provide a positive fiscal impact to municipalities. Within the market area the typical size of these facilities will range from 10,000 to 50,000 square feet at a new construction value of $30 to $60 per square foot. The future disposition of the Digital/Compaq facility will have a direct effect on the market for new facilities in the area. Specifically, in the event that a single owner occupies the facility, demand for additional warehouse/distribution facilities in the 10,000 – 50,000 square foot size range should not be dampened. However, if the facility is condominiumized or otherwise made available to multiple tenants, there will be a dampening of demand for additional facilities.

3. Targeted Industries

As indicated by the data presented in Table 2, we have analyzed the growth trends of selected industries in Merrimack County for the 1993 – 1997 period. Growth indicators include the percent change (from 1993 to 1997) in: number of business establishments, number of employees, and value of shipments and sales. For the purpose of our analysis, the following NAICS[5] industry groups are likely targets for *horizontally oriented manufacturers* that could be located in the proposed park:

- Wood Products
- Commercial Lithographic Printing
- Plastics and Rubber Products
- Fabricated metal products
- Computer and Electronic Components

These sectors accounted for 114 establishments in Merrimack County in 1997. In addition, they employed 5,287 persons (54% of total manufacturing employment) and accounted for $711,838,000 in sales.

In addition, the following NAICS industry groups, consisting of wholesale trade of durable goods, are likely targets for *warehousing and distribution operations* that may have interest in the proposed park:

- Furniture and Home Furnishings
- Professional & Commercial Equipment & Supplies, *including:*
  Computer and Computer Peripheral Equipment & Software
- Electrical Goods
- Machinery, Equipment and Supplies, *including:*
  Construction and Mining Equipment
  Industrial Equipment & Machinery
- Recyclable Material

[5] NAICS is the North American Industry Classification System. This system recently replaced the Standard Industrial Classification (SIC) System as a means of more accurately reflecting recent business development trends.

Table 2

Industry Growth Trends in Merrimack County

1993 - 1997

NAICS Industry Code	Industry Description	Percent Change: 1993 - 1997		
		No. of Estab.	No. of Employees	Shipments/ Sales
31-33	**Manufacturing**	**4.2%**	**18.5%**	**21.6%**
321	Wood Products	-0.2%	18.1%	12.0%
323110	Commercial Lithographic Printing	0.0%	98.6%	42.4%
3261	Plastics and Rubber Products	-9.1%	37.9%	21.1%
332	Fabricated Metal Products	164.7%	88.5%	184.8%
334	Computer & Electronic Components	150.0%	96.5%	138.0%
421	**Wholesale Trade/Durable Goods**	**0.0%**	**5.1%**	**34.5%**
4212	Furniture & Home Furnishings	0.0%	36.0%	23.4%
4214	Professional & Commercial Equipment & Supplies	9.5%	3.8%	42.3%
42143	Computer & Computer Peripheral Equipment & Software	33.3%	57.9%	78.5%
4216	Electrical Goods	42.9%	45.3%	49.3%
4218	Machinery, Equipment & Supplies	50.0%	13.4%	43.7%
42181	Construction & Mining Equipment	66.7%	9.2%	50.8%
42183	Industrial Equipment & Machinery	50.0%	42.9%	78.0%
42193	Recyclable Material	0.0%	27.8%	15.6%

Source: *County Business Patterns,* U.S. Census Bureau; 1993 and 1997

These sectors accounted for 90 establishments in Merrimack County in 1997. In addition, they employed 932 persons (40% of total employment in wholesale trade/durable goods) and accounted for $287,988,000 in shipments.

4. Projected Absorption Trends

Based on trends that have been observed at other business and industrial parks in the region, we believe that the proposed park could absorb about 84,000 square feet of new construction in the first ten years. Projected absorption is as follows:

Year	New Building Construction (S.F.)	Lot Sales (Acres)
1	0	0
2	10,000	2
3	0	0
4	12,000	2
5	12,000	4
6	0	0
7	16,000	3
8	12,000	2
9	10,000	1
10	12,000	3
TOTAL:	84,000	17

At an average cost of $50.00 per square foot new construction and $30,000 per acre for land, this represents a total private investment of $4,710,000. Please note that our absorption and occupancy projections are based on the following assumptions:

- Development of a fully subdivided and permitted park with lot sizes ranging from 1 to 10 acres is completed in Year 1;
- Access roads with utility (water, electric power, communications) extensions to lot frontages are constructed in Year 1;
- Fire flows are as reported herein; and
- Construction of an interstate access road via Alternative C or Alternative E as presented in this report is completed prior to Year 1.

Projected absorption would increase as much as 150% (i.e. 126,000 square feet) and trigger a 200% increase in private investment (i.e. $9,420,000) in the event municipal sewage treatment were to be provided.

APPENDIX
A

PROVAN & LORBER

Memo

To: David Provan

From: John chandler

CC:

Date: 11/11/99

Re: Hopkinton Industrial Access Road

Following are notes from the meeting of the Hopkinton Economic Development Committee:

- We provided a map at a scale of 1"=400. Aerial mapping on blue prints was from the NHDOT which was developed from1981 photos. An acetate overlay was created using tax map information from the town. The overlay also included wetland (nation wetlands inventory) and floodplain mapping from the Office of State Planning.

- Alternatives discussed included:

  A. **Red line from intersection of 127 and Kast Hill to Industrial Park**. This alternative did not get high reviews because it provided access only toward Henniker and would result in trucks using 127 on the tight curves around Paper Tech.

  B. **Blue line from 127 across a new bridge and connecting to A**. This alternative has merit due to the relatively short bridge and a connection into the railroad bed corridor bordering the River. This alternative provided better access to Exit 6 than A, but worse access to Henniker.

  C. **Green line from MacMillans house on 127 north to the Industrial land**. This alternative provides acceptable access to Exit 6 and has a moderately difficult bridge crossing location. This corridor was nearly eliminated because the landowners have expressed a strong desire to leave the property as is. The corridor remains under consideration because it was thought that over time they may change their mind.

  D. Green line from Exit 7 south along the west side of I-89 to Bound Tree Road. This corridor stimulated interest because no bridge was involved and it would create access to land, which may be suitable for industrial development. On the down side, a new I-89 southbound off ramp would have to be constructed and the town of Warner would have to be consulted.

  E. **Blue line from west of the Digital Building off 127 just west of Exit 6, north across the Contoocook River through a corn field and then to the Industrial land.** This corridor provides the best access by far and impacts the least number of

homes. The corridor also requires the longest bridge and impacts both wetland and a significant area of flood plain. The Committee understood the complications with this corridor, but wanted to investigate further due to its desirable access.

F. **Blue line from Kearsarge Avenue and south along the old Claremont line railroad bed**. This alternative was eliminated due to the impacts to numerous properties and likely impacts to wetlands. The railroad bed is also now owned by the Conservation commission.

- Pine Street: We agreed to investigate Pine Street (look at type of curb and width of walk) and make suggestions for safety improvements.

- **Development Corridor:** By looking at all the corridors on a map an idea evolved that a development corridor could possible be developed along the west side of I-89. Starting at Exit 7 and working south, this includes corridor E, Bound Tree Road, Burnhams Interval Road, and (when funds became available) construct the final leg which is alternative D.

- **Fair Grounds:** The possibility of relocating the Hopkinton Fair to the Herrick property and vise versa was mentioned. This would eliminate the traffic problem on Burnhams Intervale, except for one week, and the truck traffic to the property at the old Fairground site would access from Exit 7.

- The next meeting is scheduled for December 1st at 7am at the Town Hall. Information needed at that time includes:

  - ◊ Cost of construction based on length of corridor using per linear foot costs and square foot costs for bridges.
  - ◊ A discussion of permittability
  - ◊ Development potential
  - ◊ Affected properties

Hopkinton Economic Development Committee
Minutes
December 1, 1999
Hopkinton Town Hall

Present: Jeff Taylor, Arnold Coda, David Feller, Jeff Donohoe, Peter Russell, Bruce Ellsworth, Peter Helm, Susan Leadbeater, Doug Brown, John Moffatt David Provan, John Chandler, and Karen Mayo.

Absent/Excused: John Madden, Steve Adams, Mark Bates, and Celeste Hemingson.

1. Jeff Taylor and Arnold Coda spoke about their recent meeting with the Planning Board. The Planning Board had invited leaders of various boards and committees to listen to ideas that each board and committee is exploring to ensure that those ideas are included in the process of preparing a new Town Master Plan. The Planning Board is aware of the Committee's efforts to identify new potential access points to the Burnham Intervale Road property, e.g., possible bridge connection or possible corridor beginning near exit 7, off I-89. In addition, the Planning Board is aware of the Committee's interest in the revitalization of Contoocook Village.

2. Discussion ensued about the design charrette for Contoocook Village. It was agreed that the purpose of the charrette is to have an open dialog, so that the people can give their likes and dislikes of the Village, giving a sense as to how the Village should look. The inner core of the Village was described by Bates Library/Baptist Church (Main Street), Provan and Lorber/Methodist Church (Maple Street), Grange Building (Cedar Street), Library/Police Station (Pine Street), Merrimack County Telephone (Kearsarge Street), and the Post Office (Park Street). The outer limits of the Village was described by Contoocook Cemetery, Maple Street School, Route 89 overpass on Pine Street, Spring Street intersection on Kearsarge Street, and the High School on Park Avenue. Preliminary dates of January 21 and 22 have been selected for the charrette. The charrette should be at a central location to the Village. After discussion, it was agreed that:

   - Bruce Ellsworth will contact Paul Violotte of Merrimack County Telephone Company to see if they will allow the charrette to take place in their conference room;

   - Jeff Taylor will contact the charrette team and will invite the State Highway Engineer as an observer;

   - Jeff Taylor will confirm the dates of the charrette with Peter Russell and then put together a punch list of assigned tasks, and

   - The Selectmen will sponsor the charrette.

3. David Feller suggested that members of the Committee attend the Municipal and Economic Development Workshop sponsored by the Capital Regional Development Council (CRDC). CRDC will give a briefing concerning their economic development programs. It was noted that CRDC is interested in efforts being made to identify potential access points to the industrial land, located off Burnham Intervale Road. Those who plan to attend the workshop include: Bruce Ellsworth, Arnold Coda, John Moffatt, Jeff Donohoe, Peter Russell, and Karen Mayo.

4. Industrial Access—David Provan and John Chandler of Provan and Lorber Inc. reviewed preliminary road profiles, cross-sections and matrix of the primary corridors that were agreed upon at the Committee's previous meeting. The possible points of access include the following:

   - Kast Hill Road/Old Railroad Bed—Approximate Cost: $2,000,000;
   - Bridge (1550 feet) from Route 127, near Compaq—Approx. Cost: $8,000,000;
   - Bridge (290 feet) from Route 127, near Papertech—Approx. Cost: $3,600,000;
   - Bridge (400 feet) from Route 127, near MacMillan—Approx. Cost: $4,000,000;
   - Road (9000 feet) from Exit 7, alongside I-89 to Bound Tree Road—Approx. Cost: $1,800,000.

   *Note: In some cases the length of the bridge includes that area over the river and floodway. Most of the potential access points are complicated by floodplain and land ownership issues. Cost estimates are construction costs only and do not include land acquisition for each project.

   At the Committee's meeting of December 15, 1999, David Provan will provide a final report with recommendations, provide additional analysis, and will make available a list of funding programs. In the meantime, Mr. Provan will speak with Neil Cannon of CRDC.

   There was considerable discussion as to whether or not most of the traffic enters the Town from the Vermont or Keene area or from the Nashua or Manchester area.

   Peter Russell commented that promoting new economic growth will create more pedestrian and vehicular traffic within the Village; when in fact, the Committee is trying to eliminate some of that traffic that is caused by the existing businesses. In the alternative of soliciting new businesses, it may be in the Town's best interest to try to work on trying to retain the existing businesses and assist in marketing the existing land and/or buildings that is currently available for commercial/industrial uses.

   Jeff Donohoe noted that Business NH Magazine publishes a list of industrial parks with available property. Some of the property listed in the magazine is better situated than the industrial land in Hopkinton. Many of the properties listed have water and sewer available. John Moffatt noted that Russ Thibault has indicated that the land off Burnham Intervale Road is prime land for industry because of the soils and drainage factors.

   With no further business, the meeting was adjourned at 9:30 PM. The next scheduled meeting is Wednesday, December 15, 1999, at which time the Contoocook Riverway Association will discuss their proposed land plan for the old railroad depot.

   Respectfully submitted,

   Karen L. Mayo
   Planning/Zoning Coordinator

TOWN OF HOPKINTON, NEW HAMPSHIRE
Planning Board/Zoning Board of Adjustment
330 Main Street
Hopkinton, New Hampshire 03229
Telephone (603) 746-3170
Facsimile (603) 746-2952
Email: Plan/zone@hopkintonnh.org

RECEIVED
MAY 18 2000
PROVAN & LORBER, INC.

May 16, 2000

David Provan
Provan & Lorber Inc.
53 Maple Street
Contoocook, NH 03229

Re: Industrial Access Study

Dear David:

As requested, I reviewed the Town's records and have listed the previous five (5) industrial projects along with the assessments and tax rate.

Name of Company	Location	Assessed Value/Tax Rate	Square feet of Buildings
New Kearsarge Corporation (approved: 7/31/97)	292 Burnham Intervale Rd.	$ 252,800 Land $1,124,250 Buildings $27.27 Tax Rate	Office/Manufacturing/Sawdust Storage/Concrete Pad/Oil Tank/Open Storage: 67,272 total square feet
Excalibur Shelving Systems Inc. (approved: 8/13/87)	244 Burnham Intervale Rd.	$ 302,650 Land $ 608,800 Building $27.27 Tax Rate	Office/Manufacturing/Mezzanine: 32,368 total square feet
Yankee Book Peddler Inc. (approved: 3/15/77)	999 Maple Street	$ 385,300 Land $1,583,550 Buildings $ 25.33 Tax Rate	Office/Warehouse/Air Lock/Shed/Oil Tank: 34,848 total square feet
Crathern Engineering (approved prior to 1975)	879 Maple Street	$ 369,200 Land $1,010,300 Building $25.33 Tax Rate	Manufacturing/Mezzanine/Concrete Pad: 42,632 total square feet
Southworth Milton Inc. (approved: 11/18/68)	554 Maple Street	$ 597,600 Land $1,599,700 Buildings $25.33 Tax Rate	Office/Warehouse/Garage/Propane Tank: 47,372 total square feet

Please let me know if you should need additional information.

Sincerely,

Karen

Karen L. Robertson
Planning/Zoning Coordinator

cc: Neil Cannon, CRDC
Jeff Taylor, EDC
Hopkinton Selectmen

TOWN OF HOPKINTON, NEW HAMPSHIRE
Office of Selectmen
330 Main St.
Hopkinton, N.H. 03229
Tel. (603) 746-3170

COPY

RECEIVED
JAN 27 2000
PROVAN & LORBER, INC.

January 25, 2000

William C. Cannon
Capital Regional Development Council
P.O. Box 664
Concord, NH 03302-0664

Re: Industrial Land Access Study

Dear Neil:

Please find attached copies of property assessment cards for the three (3) largest parcels involved in each of the alternate routes of access to the industrial land located off Burnham Intervale Road.

Shown below is an overall list of property owners, acreage and land only assessments of properties affected by each route of access. Please note that there may be properties affected that may have been inadvertently excluded from the list.

Kast Hill—Alternate A

Name/Tax Map/Lot:	Acreage:	Assessment (land only):
Hart, Frances M. (210/04)	38+/-	$166,500
Wunderlich, Paul & Rita (210/11)	4.2	$41,800
USA (210/23)	15	No Value Given
Close, Edward & Beverly (210/29)	6	$65,100

Papertech—Alternate B

Name/Tax Map/Lot:	Acreage:	Assessment (land only):
Emerson Hill Group (210/14)	.25	$29,750
Andrus, Roger & Norma (210/16)	3	$48,700
Papertech Inc. (210/18.01)	3.4	$2,850
French, Roger W. (209/49)	50	$156,000
Stonynook Farm Inc. (209/52)	14.87	$23,500
Patenaude, Wayne (209/53)	8.86	$7,250
Morgan, Marc & Lisa	.49	$33,000
Purington, Gary & Kathy (209/55)	.45	$32,000

MacMillan—Alternate C

Name/Tax Map/Lot:	Acreage:	Assessment (land only):
MacMillan, Richard (218/04)	6	$89,500
Grady, Martin Jr. & Agnes (218/06)	127	$160,150

Rice, Donald & Mildred (219/12)	165	$127,800
HIDCO c/o Herrick (220/12)	5	$7,350
HIDCO c/o Herrick (220/13)	3.9	$5,550
HIDCO c/o Herrick	9.3	$14,650
HIDCO c/o Herrick	5.7	$9,000
Herrick Millwork Inc. (220/21)	8.1	$12,750
Herrick Millwork Inc. (220/23.2)	118.74	$243,700

Bound Tree Road & Burnham Intervale—Alternate D

Name/Tax Map/Lot:	Acreage:	Assessment (land only):
Wilson, Barbara (206/13)	45	$67,100
Peasley, Raymond (206/15)	36	$57,150
Doughty, Janice (206/18)	80.55	$40,800
Patterson, Dana (221/66)	144.2	$116,300
Weston, Howard (221/69)	31	$66,200
Crews, Gene (221/70)	.60	$26,600
Hasey, Harry IV (221/71)	.43	$6,550
Walls, Barbara (221/75)	7.1	$67,200

Compaq—Alternate E

Name/Tax Map/Lot:	Acreage:	Assessment (land only):
Herrick, John	58	$166,000
Houston, Robt. & Donald (220/9)	45	$$66,500
Herrick Millwork (220/23.2)	118.74	$243,700
NHIDA – Compaq Bldg. (228/34)	58.66	$649,300

Tax Rate/Equalization Ratio

Most of the properties listed are located outside of the Contoocook Village Precinct. The tax rates are as follows: $25.33 (outside of Precinct) and $27.27 (Contoocook Precinct). Hopkinton's equalization ratio is currently 108 percent.

Please let me know if I can be of further assistance.

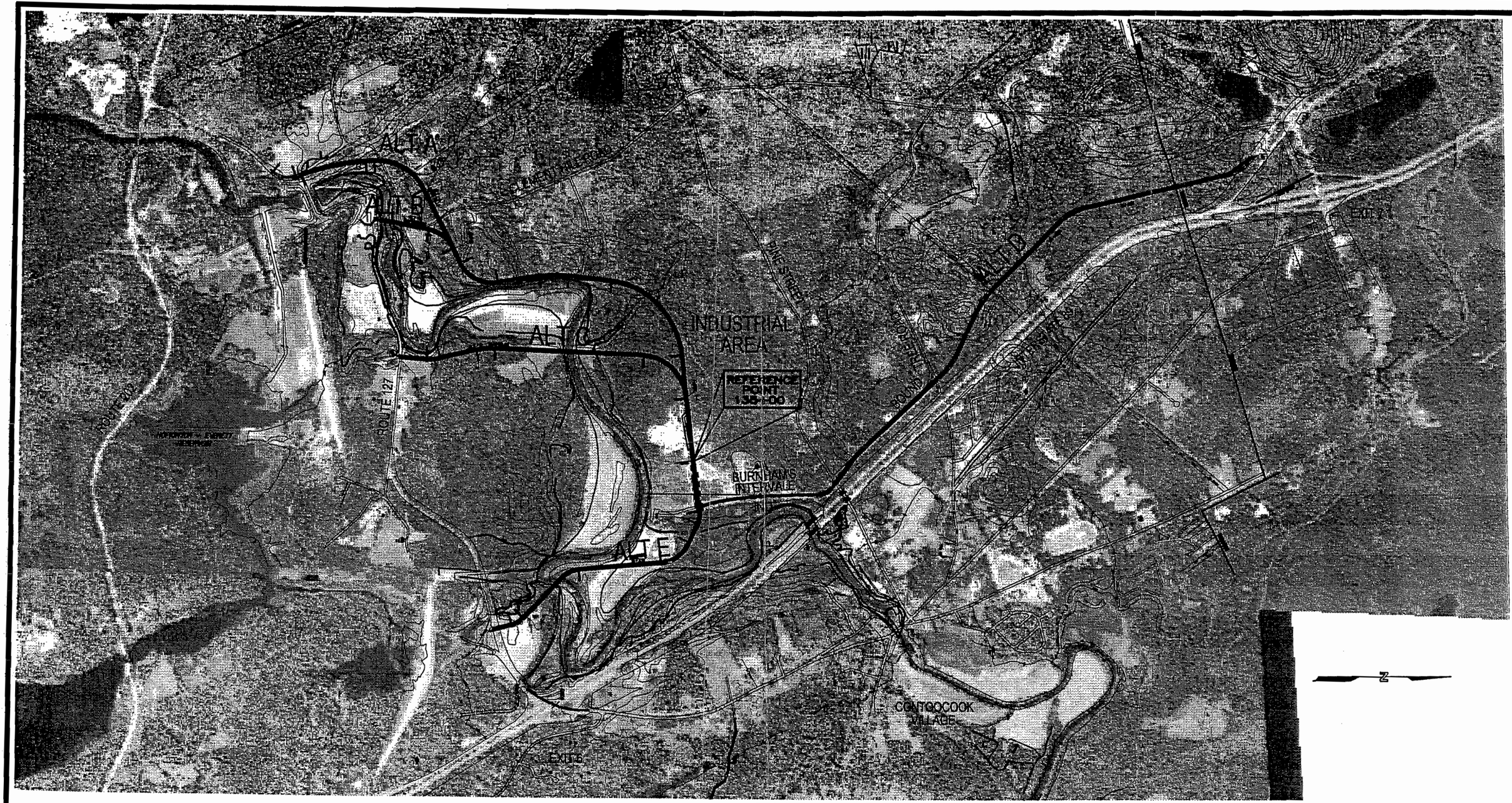
Sincerely,

Karen

Karen L. Robertson
Planning/Zoning Coordinator

cc: John Chandler, Provan & Lorber Inc.
Jeff Taylor, Economic Development Committee
Selectmen

FIGURES



0 2000 4000 6000

SCALE IN FEET
1"= 2000'

Provan & Lorber, Inc.
ENGINEERS AND PLANNERS

Home
Office: PO Box 389, Contoocook, NH 03229 (603) 746-3220

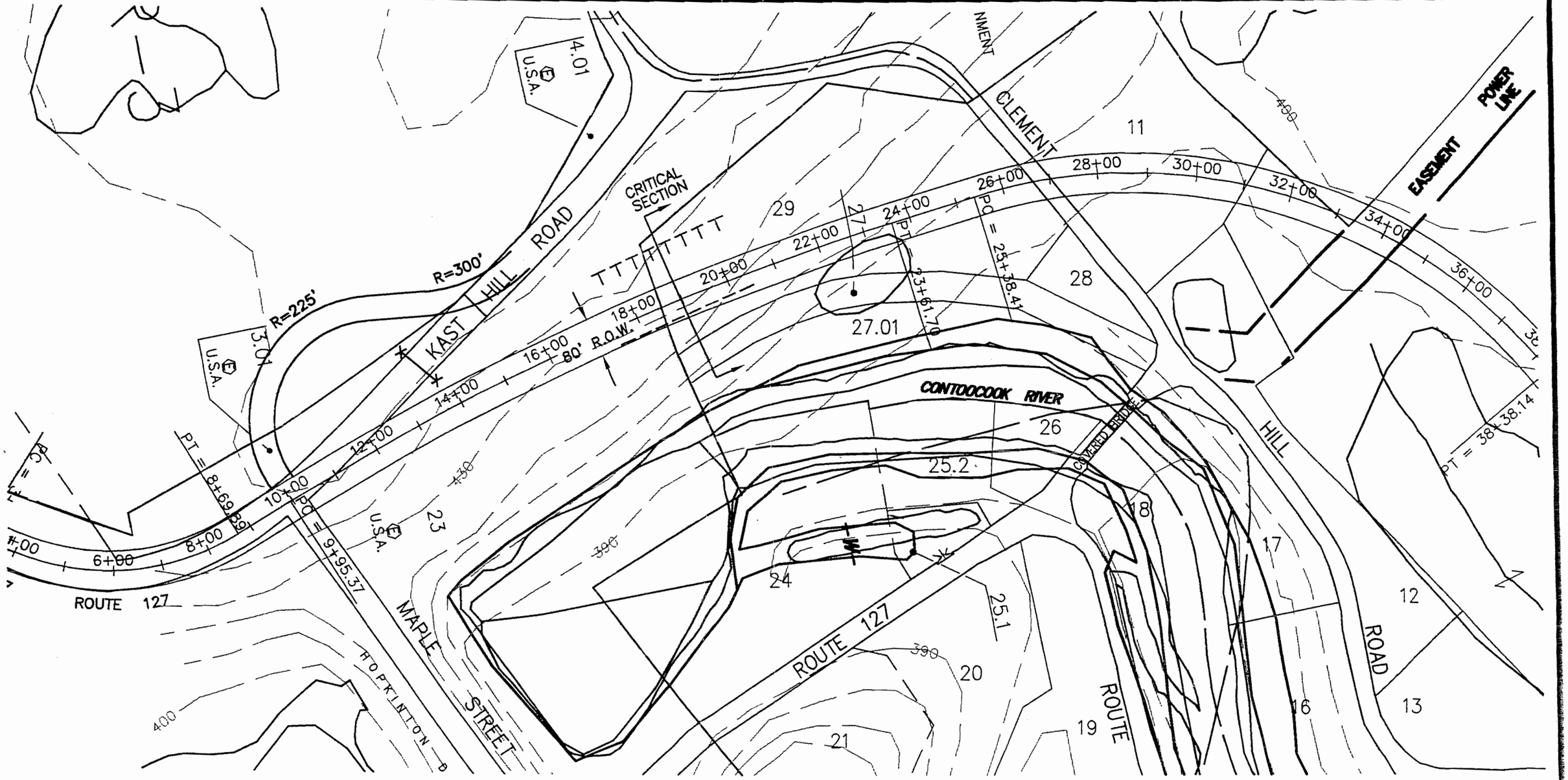
Northern NH
Office: PO Box 167, Littleton, NH 03561 (603) 444-6301

Vermont
Office: 7 Main St. Montpelier, VT 05602 (802) 229-1442

FIGURE: 1

HOPKINTON INDUSTRIAL ACCESS STUDY

PROJECT AREA



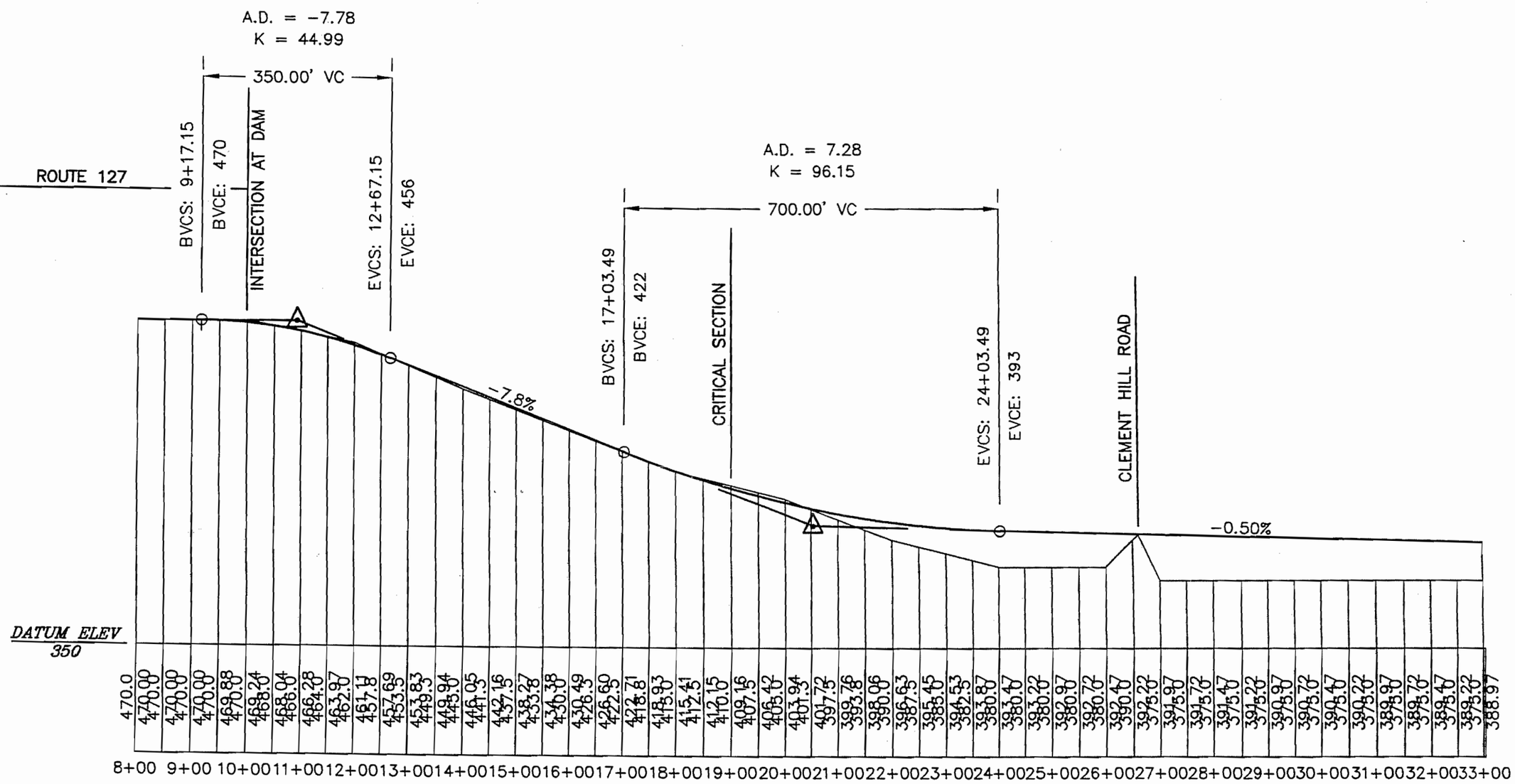
Provan & Lorber, Inc.
ENGINEERS AND PLANNERS

Home Office: PO Box 389, Contoocook, NH 03229 (603) 746-3220
Northern NH Office: PO Box 167, Littleton, NH 03561 (603) 444-6301
Vermont Office: 7 Main St. Montpelier, VT 05602 (802) 229-1442

FIGURE: A-1

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN
KAST HILL ALTERNATE A



CRITICAL ROAD PROFILE

SCALE: 1" = 200' HORIZONTAL
1" = 40' VERTICAL

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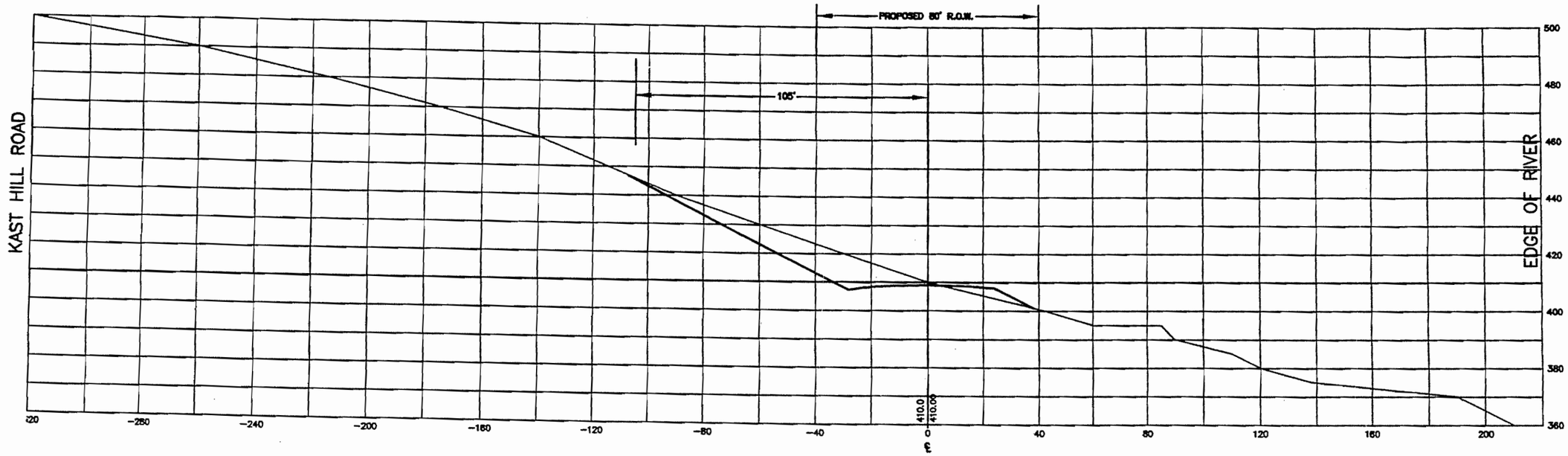
FIGURE: A-2

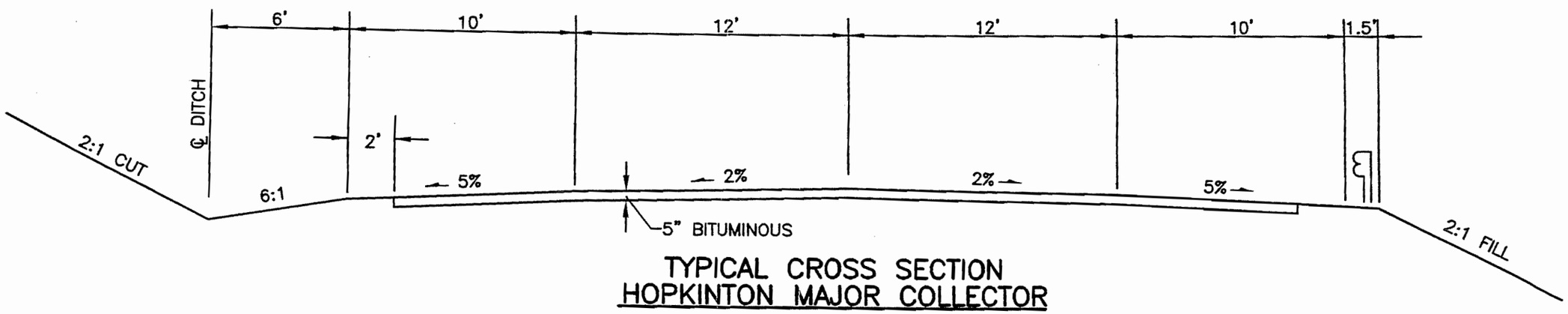
HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PROFILE
KAST HILL ALTERNATE A



CRITICAL SECTION

SCALE: 1" = 40'



TYPICAL CROSS SECTION
HOPKINTON MAJOR COLLECTOR

SCALE: 1" = 5'

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FIGURE: A-3

HOPKINTON INDUSTRIAL ACCESS STUDY

STATION 19+00
CRITICAL ROAD CROSS SECTION
& TYPICAL CROSS SECTION
KAST HILL ALTERNATE A

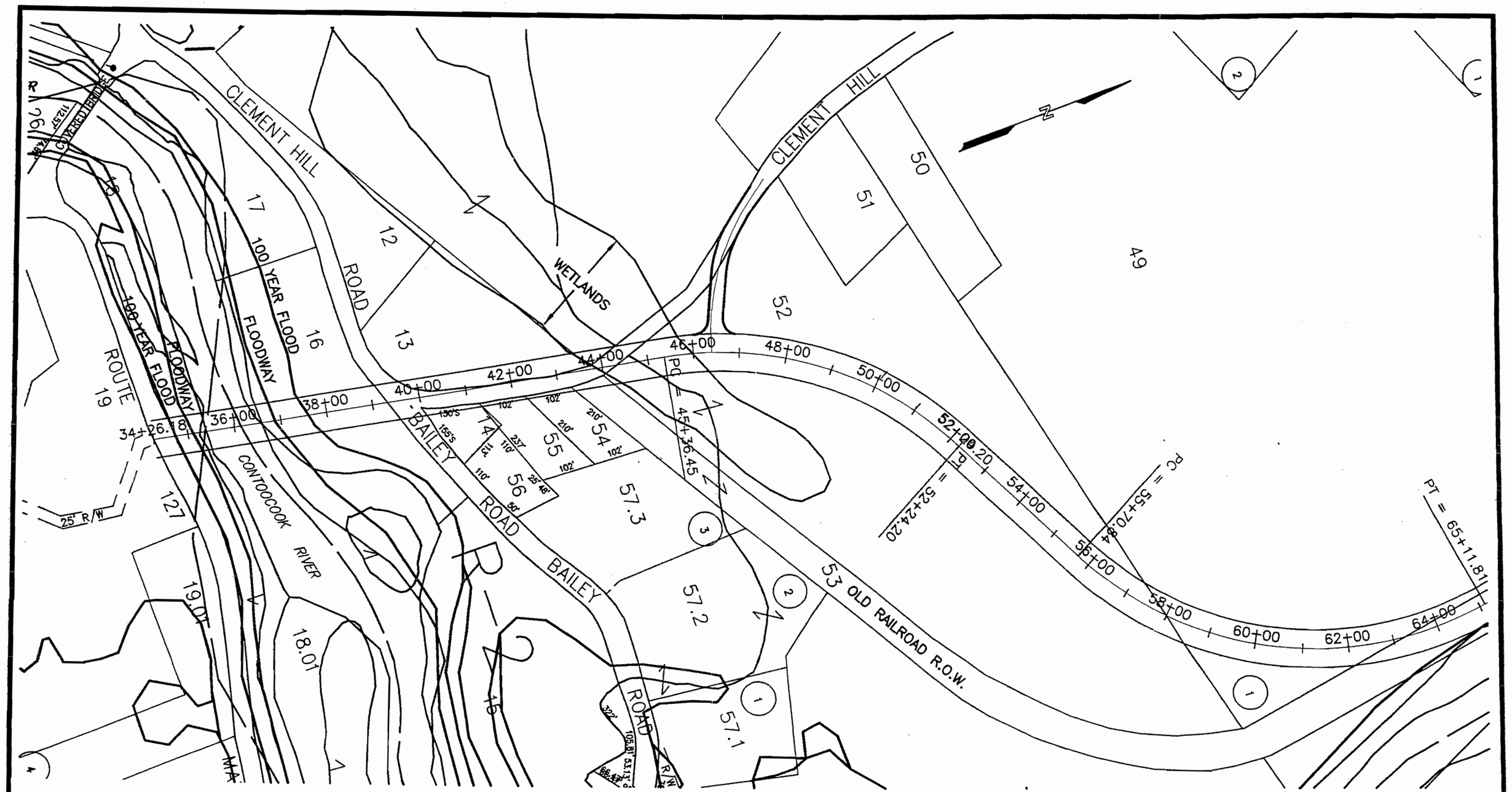

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FIGURE: B-1

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN
PAPERTECH – ALTERNATE – B

0 400 800 1200

SCALE IN FEET

1" = 400'

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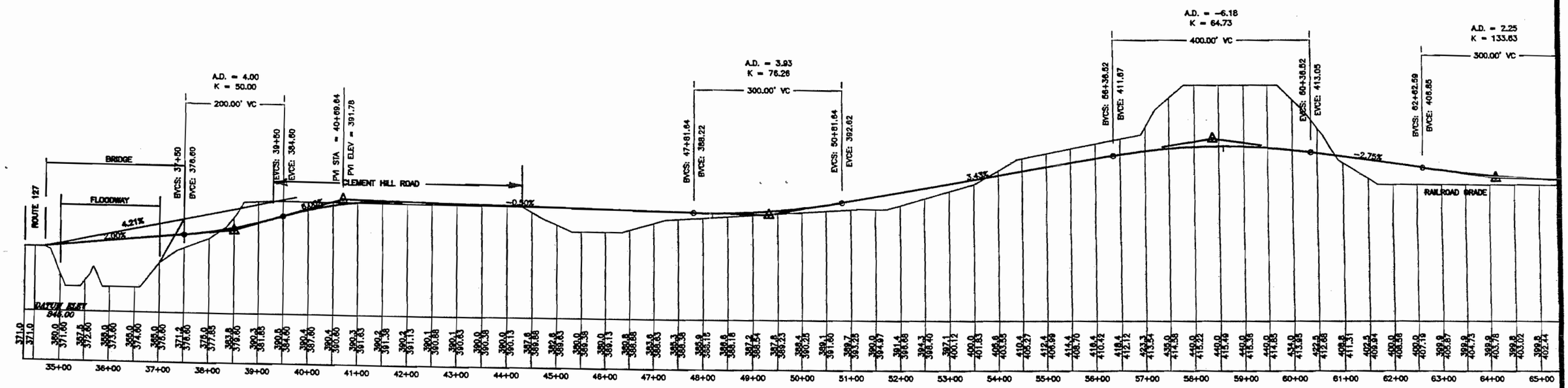
FIGURE: B-2

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN

PAPERTECH – ALTERNATE – B



SCALE: 1" = 200' HORIZONTAL
1" = 40' VERTICAL

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FIGURE: B-3

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PROFILE
PAPERTECH – ALTERNATE – B

0 500' 1000' 1500'

SCALE IN FEET
1" = 500'

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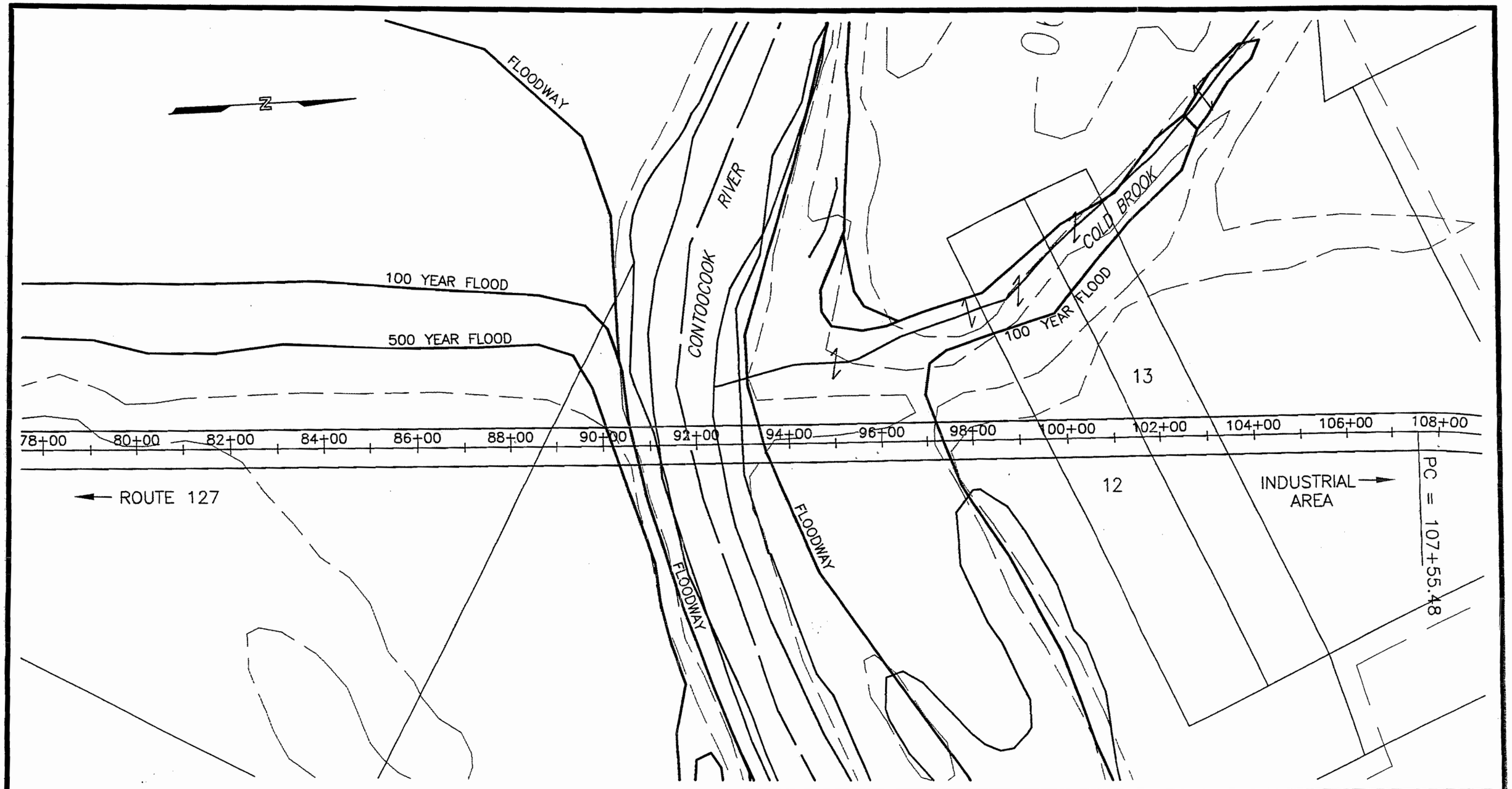
FIGURE: C-1

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN
MACMILLAN – ALTERNATE C



0 200' 400' 600'

SCALE IN FEET
1" = 200'

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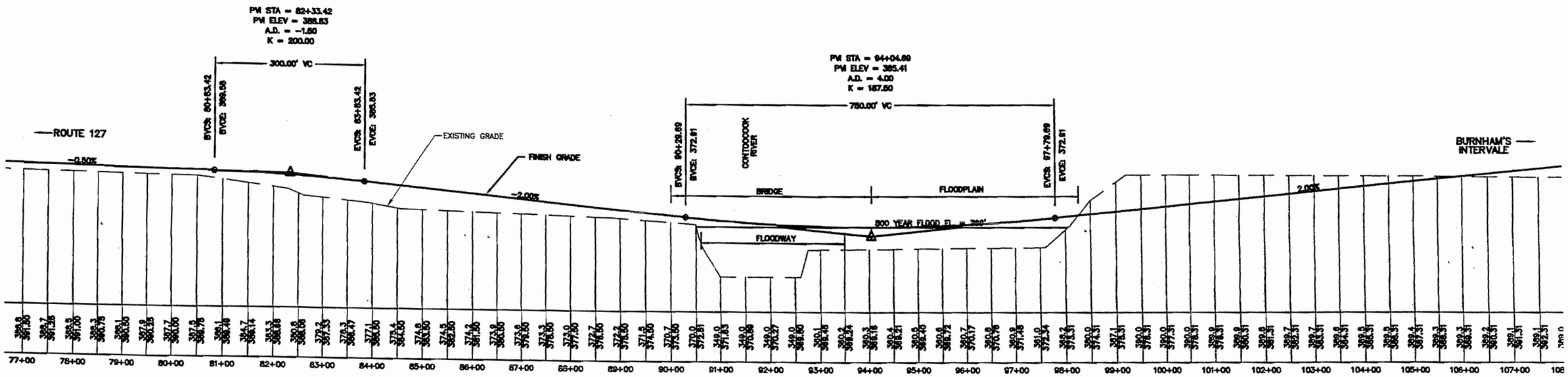
FIGURE: C-2

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN
ROUTE 127 – ALTERNATE C



PROFILE

SCALE: 1" = 200' HORIZONTAL
1" = 40' VERTICAL

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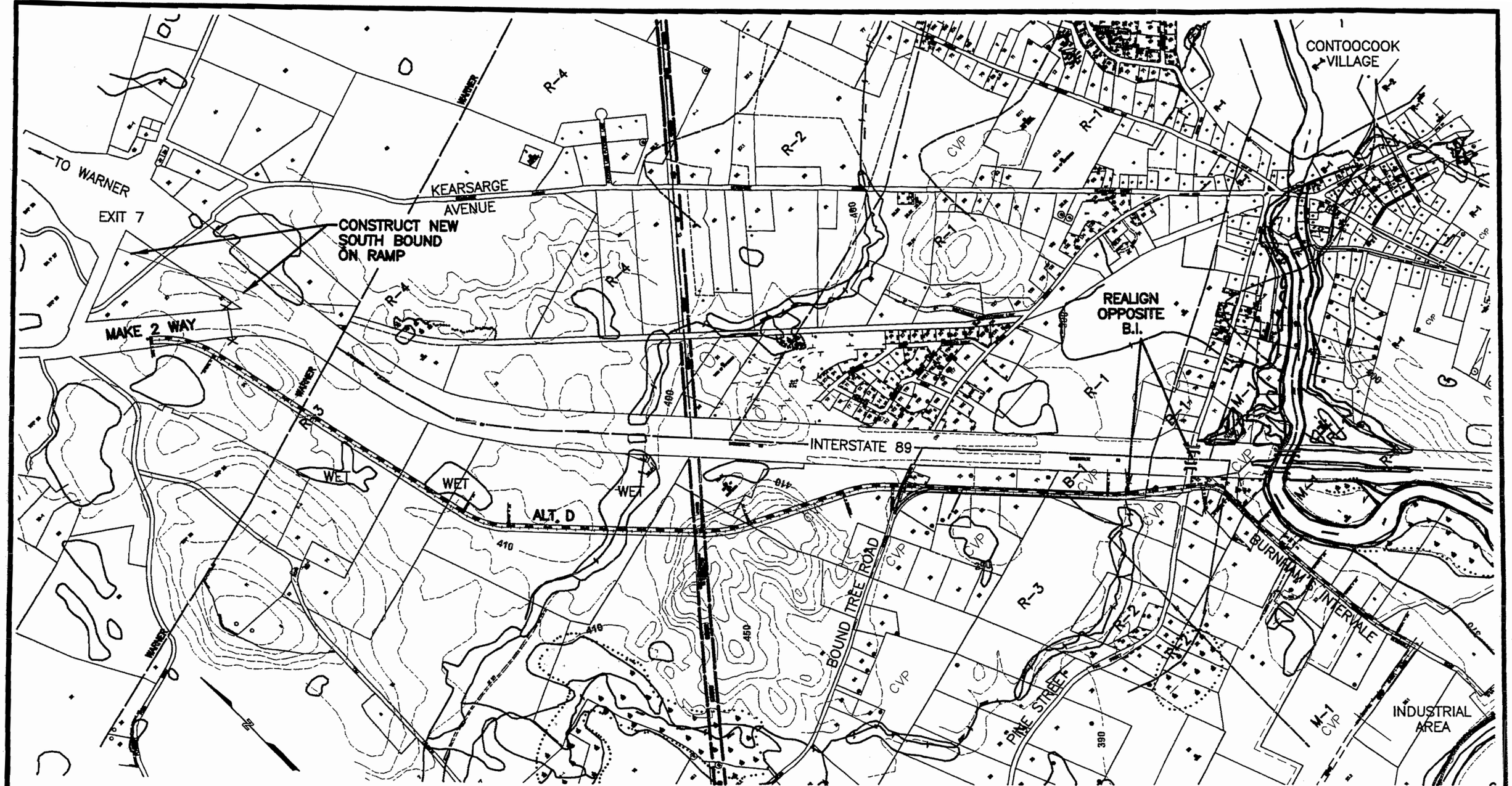
FIGURE: C-3

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PROFILE
MACMILLAN – ALTERNATE C



SCALE: 1"= 1000'

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FIGURE: D

HOPKINTON INDUSTRIAL ACCESS STUDY

ALTERNATE D WITH BOUND TREE RD & BURNHAM'S INT.

0 400 800 1200

SCALE IN FEET
1" = 400'

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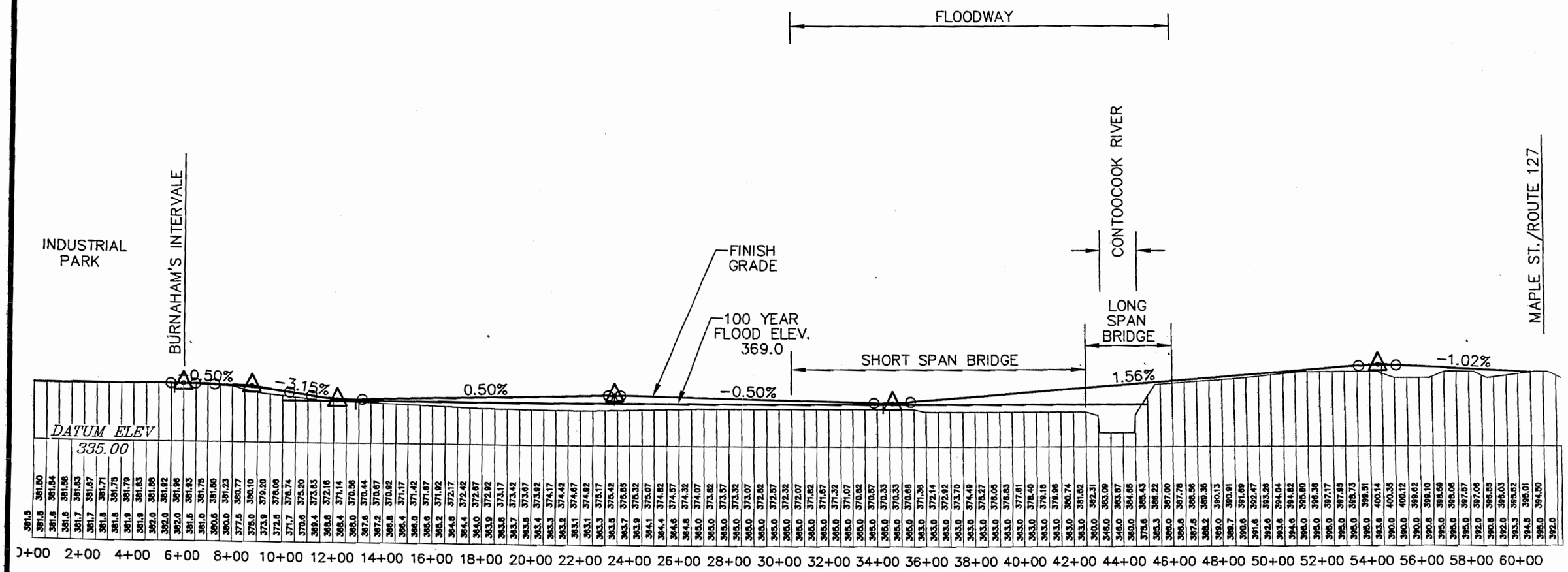
FIGURE: E-1

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PLAN
COMPAQ – ALTERNATE E



PROFILE

SCALE: 1" = 400' HORIZONTAL
1" = 80' VERTICAL

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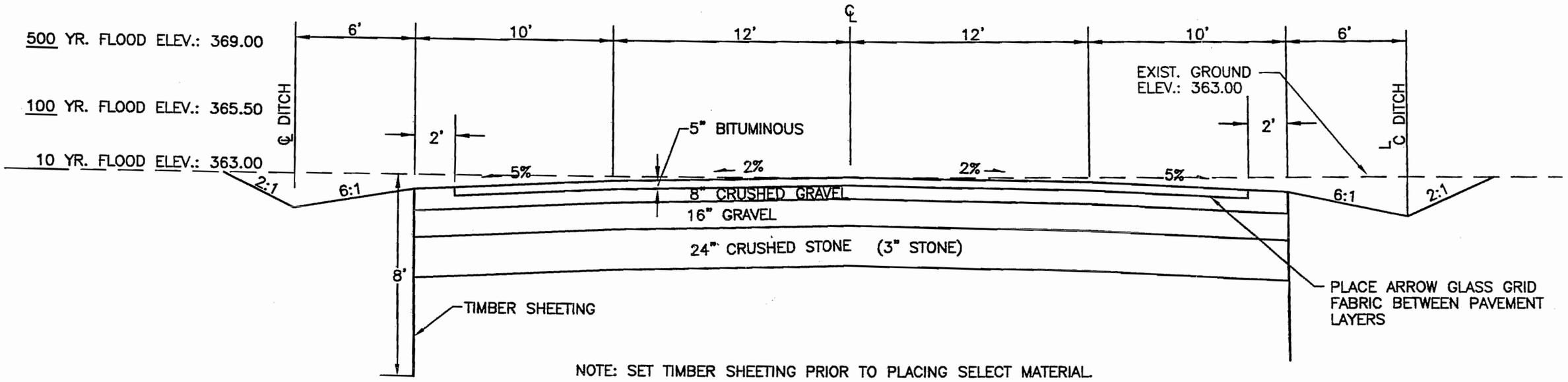
FIGURE: E-2

HOPKINTON INDUSTRIAL ACCESS STUDY

CRITICAL ROAD PROFILE
COMPAQ – ALTERNATE E



NOTE: SET TIMBER SHEETING PRIOR TO PLACING SELECT MATERIAL.

TYPICAL CROSS SECTION THROUGH FLOODWAY AT GRADE HOPKINTON MAJOR COLLECTOR

SCALE: 1" = 5'

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FIGURE: E-3

HOPKINTON INDUSTRIAL ACCESS STUDY

FLOODWAY CROSS SECTION
ALTERNATE – E

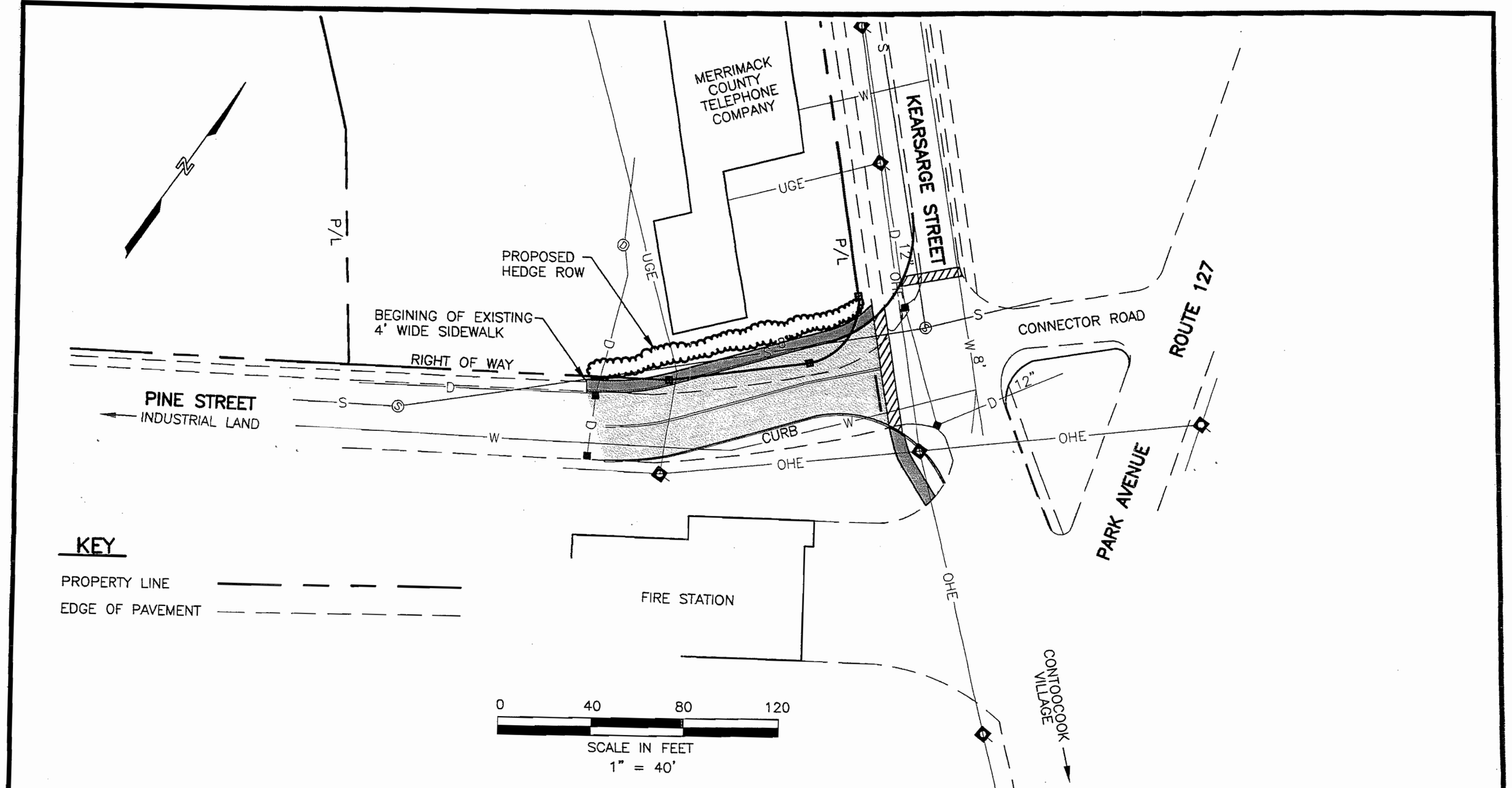

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FIGURE: NT-1

HOPKINTON INDUSTRIAL ACCESS STUDY

INTERSECTION OF PINE STREET & KEARSARGE STREET

CRITICAL ROAD NEAR TERM IMPROVEMENT #1

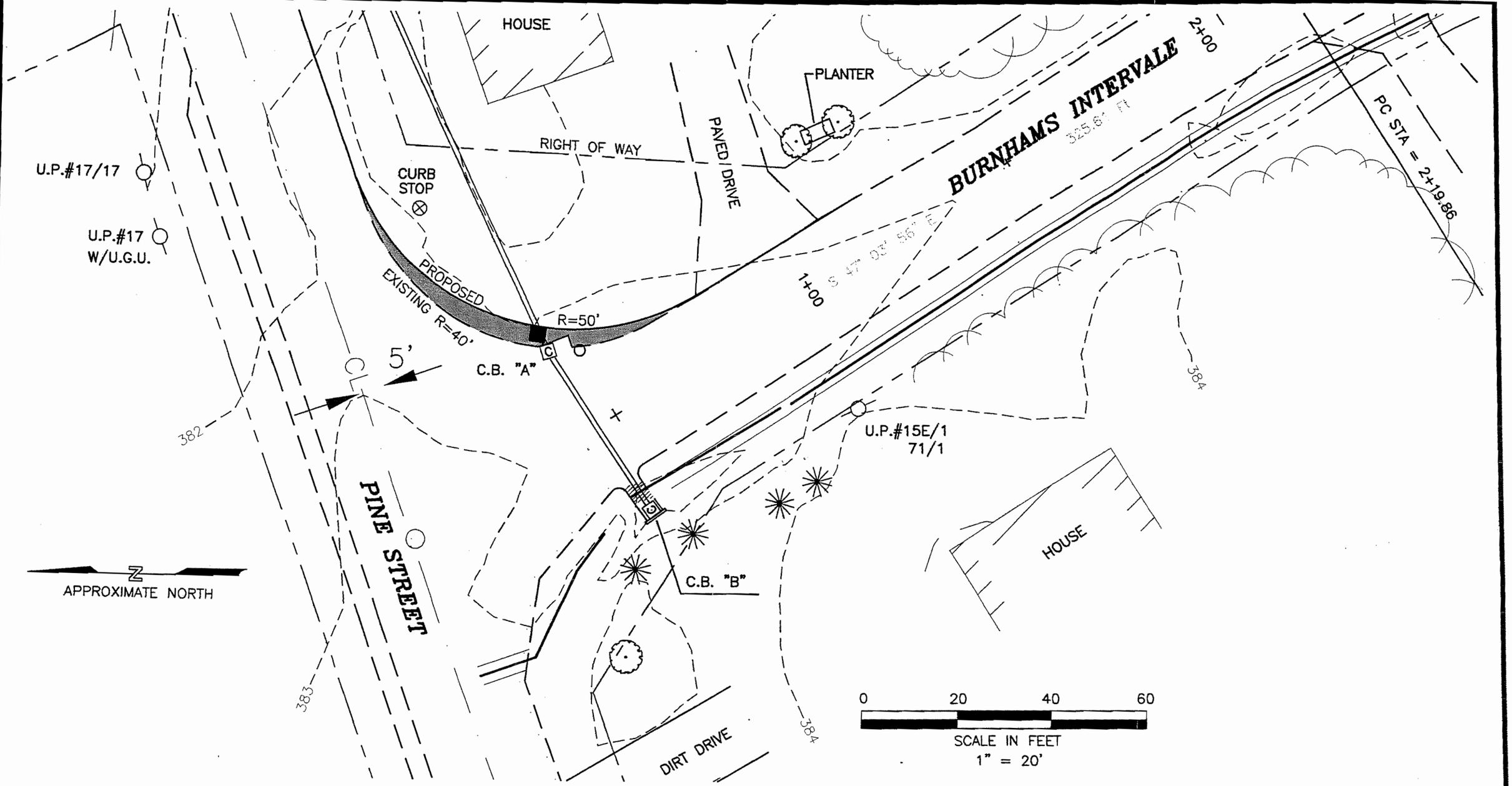

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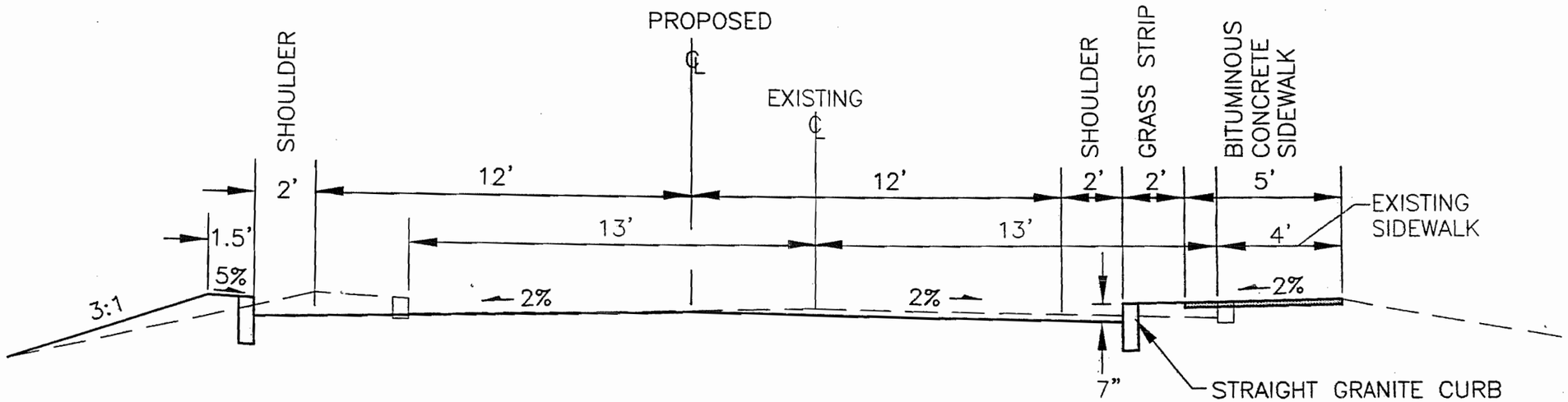
FIGURE: NT-2

HOPKINTON INDUSTRIAL ACCESS STUDY

INTERSECTION OF PINE STREET & BURNHAMS INTERVALE

CRITICAL ROAD NEAR TERM IMPROVEMENT #2



PINE STREET IMPROVEMENT
TYPICAL CROSS SECTION

KEARSARGE STREET TO LIBRARY

SCALE: 1" = 4'

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FIGURE: NT-3

HOPKINTON INDUSTRIAL ACCESS STUDY

PINE STREET IMPROVEMENT
TYPICAL CROSS SECTION