

4



# CITY OF SACRAMENTO

## DEPARTMENT OF PUBLIC WORKS

OFFICE OF THE DIRECTOR

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December 2, 1986

Budget and Finance Committee  
Sacramento, California

Honorable Members in Session:

SUBJECT: NORTH NATOMAS DRAINAGE STUDY - PHASE II

### SUMMARY

The adopted North Natomas Community Plan requires the development of an "Infrastructure Design Report and Financing Study". A master drainage plan is a key element in this study. This report recommends the allocation of \$335,000 of Drainage Funds to complete the North Natomas Drainage Study and develop the Master Drainage Plan. These funds will be reimbursed through the subdivision map or PUD process as development occurs.

### BACKGROUND

The firm of Dewante and Stowell was retained to develop a conceptual drainage plan for the North Natomas Community Plan Draft EIR (North Natomas Drainage Study - Phase I). The adopted Community Plan recognized that this plan as well as other conceptual infrastructure plans, must be refined and made project specific in order to develop an infrastructure financing plan which equitably distributes infrastructure cost, and in order to design and construct permanent infrastructure facilities. Consequently, the adopted Community Plan specifies that a "Infrastructure Design Report and Financing Study" be developed for the entire North Natomas Community Plan area. The adopted Plan further specifies that the report and study must be completed prior to the approval of any Final Subdivision Map or PUD, or building permit pursuant to the Community Plan. The sports complex was exempted from this requirement.

The original intent was to retain a consultant to develop the entire "Infrastructure Design Report and Financing Study". It is now intended that various elements of the study and report will be produced and that staff will combine these elements to develop the completed document. This concept will be described in a separate report.

The development of a Master Drainage Plan is a key element in this process. Staff has developed the attached Scope of Work to accomplish this task. It is staff's recommendation that Dewante and Stowell be retained to complete Phase II of the drainage study and develop this very complex Master Drainage Plan. This firm was selected to develop the conceptual plan (North Natomas Drainage Study - Phase I) because they are extremely competent in this area and have no working relationships with any of the North Natomas development interests in the City. Staff believes that the selection of this firm will expedite the process and result in an excellent Master Drainage Plan.

#### FINANCIAL

It is estimated that the development of the Master Drainage Plan will cost \$315,557. It is recommended that \$335,000 be appropriated to this project to cover the additional cost of staff review time. While \$335,000 may see a high cost for this plan, it should be pointed out that the conceptual drainage study estimated that the cost of drainage facilities for North Natomas would be about \$160,000,000. Therefore, the cost of the Master Plan would be only 0.2% of the estimated construction cost of drainage facilities.

The adopted North Natomas Community Plan requires that the "Infrastructure Design Report and Study" be privately financed. To accomplish this, it is recommended that drainage funds be advanced to fund the report and study and that these funds be reimbursed by a fee charged during the subdivision map or PUD process. It is proposed that this fee be set at \$43 per acre. This amount was derived by dividing the \$335,000 study cost by the total amount of acres within the City in the North Natomas Community Plan area (7778). It should be pointed out that this amount only recovers the cost of the drainage study. There are other planning costs for North Natomas which have to be recovered. Separate reports will discuss these.

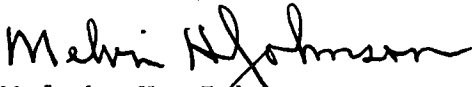
#### RECOMMENDATION

It is recommended that the Committee approve the attached resolutions and direct staff to forward them to Council for adoption. These resolutions accomplish the following:


- (1) Appropriate \$335,000 of drainage funds to the North Natomas Drainage Study Phase II project.

- (2) Authorize the City Manager to enter into an agreement, not to exceed \$315,557 with the firm of Dewante and Stowell to complete the North Natomas Drainage Study - Phase II and develop the North Natomas Master Drainage Plan.
  
- (3) Establish a \$43 per acre fee to be paid as a condition of approval for all subdivision maps or PUD Special Permits including the sports complex, in the North Natomas Community Plan area.

Respectfully submitted,

  
Melvin H. Johnson  
Director of Public Works

RECOMMENDATION APPROVED:

  
Jack Crist  
Deputy City Manager

December 2, 1986

# RESOLUTION No.

Adopted by The Sacramento City Council on date of

RESOLUTION AUTHORIZING THE CITY MANAGER TO  
ENTER INTO AN AGREEMENT AND AMENDING THE 1986-  
1987 CAPITAL IMPROVEMENT BUDGET FOR THE NORTH  
NATOMAS DRAINAGE STUDY

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO THAT:

1. The City Manager is hereby authorized to enter into an agreement with the firm of Dewante and Stowell to complete the North Natomas Drainage Study - Phase II and develop the North Natomas Master Drainage Plan, for a cost not to exceed \$315,557.
2. The 1986-1987 Capital Improvement Budget is hereby amended by transferring \$329,000 from the defunded American River Levee Reconstruction Project (4-25-500-WA96-4820) to the Storm Drainage Contingency Project (4-25-710-7012-4999).
3. The 1986-1987 Capital Improvement Budget is hereby further amended by transferring \$335,000 from the Storm Drainage Contingency (4-25-710-7012-4999) to the North Natomas Drainage Study (4-25-500-WB16-4820).

# RESOLUTION NO.

ADOPTED BY THE SACRAMENTO CITY COUNCIL ON DATE OF

A RESOLUTION AMENDING THE CITY OF SACRAMENTO FEE AND CHARGE REPORT TO INCLUDE AN ADDITIONAL FEE FOR FINAL SUBDIVISION MAPS AND PLANNED UNIT DEVELOPMENTS IN THE NORTH NATOMAS COMMUNITY PLAN AREA

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

1. Pursuant to City Code Section 40.510, the City of Sacramento Fee and Charge Report is hereby amended to include an additional filing fee of \$43 per gross acre for a final subdivision map located within the North Natomas Community Plan area. This fee is in addition to the current charge of \$300 plus the sum of \$2.00 for each lot in excess of 50 lots shown on said map. The \$43 per acre fee for subdivisions is not applicable if the fee is paid as part of the planned unit development review process. The additional fee will be credited to the Storm Drainage Fund.
2. The City of Sacramento Fee and Charge Report is hereby amended to include an additional fee of \$43 per gross acre for planned unit developments in the North Natomas Community Plan area. This fee is in addition to any other charge related to planned unit developments. The additional fee will be credited to the Storm Drainage Fund.

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MAYOR

ATTEST:

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CITY CLERK

NORTH NATOMAS DRAINAGE STUDY PHASE II

SCOPE OF WORK

Purpose of Study

A review by City staff and various agencies of the report, "Drainage Study, North Natomas Area, December 1984", has raised some significant issues that should be addressed prior to adopting a master plan for drainage facilities in the North Natomas Area. This study and report will discuss and recommend, where appropriate, mitigation measures to resolve those issues. Additionally, the 1984 drainage plan will be updated and modified, as required to conform to the adopted community plan and to accommodate any proposed mitigation measures and other new information.

Scope of Work

The work to be performed is as listed below. During the course of the work development pressures may require that a particular area have a higher priority than another. If such is the case, the City will instruct the Engineer accordingly.

- A. Review the existing drainage study, the EIR, and the adopted community plan and address, discuss and reconcile if possible all concerns, proposed mitigation measures, and unresolved issues.
  
- B. Update the drainage study based on the adopted land use plan and the issues outlined in the EIR. These issues shall include the following:
  1. Re-evaluate the magnitude of flows entering project area from RD 1000 lands as per EIR. What effects will future developments outside the project area have on flows within the area? Recommend design criteria to account for this possibility.
  
  2. Re-analyze project runoff based on the adopted land use plan. (The existing study assumed runoff based on medium density [50 percent impervious surface] and two storage basins instead of one.) Evaluate operation and maintenance problems of storage basins.
  
  3. Determine the seepage contribution to flows in the major channels. A soils consultant must be utilized by the consultant for this task.

4. Using the information derived from the above analysis ((1), (2), and (3) above), recompute and delineate necessary channel and pipe sizes 36" diameter and larger, hydraulic grade lines, tributary areas, storage basin requirements, and pumping requirements using the methods and criteria outlined in Appendix B of the drainage study. (Other appropriate methods may be used if approved by the City.) Provide separate studies for each tributary area of the proposed development, including maps of the tributary areas and design flows. Provide drawings of standard canal cross sections and profiles of channels.
- C. Address the phasing of the proposed drainage facilities.
1. Identify project components in each phase necessary to assure that adjacent developed and undeveloped lands will be adequately protected from flooding.
  2. Evaluate the effect on downstream water levels and drainage systems. Will existing drainage pump stations and drainage systems be adversely affected? Outline necessary mitigation measures for each phase.
  3. Review Developer's plans and determine if proposal improvements can be integrated into project as permanent facilities.
  4. Determine how agricultural runoff and irrigation water should be handled during early project phases. What mitigation measures are required?
  5. Determine how the proposed drainage facilities may provide summer crop irrigation until development of these lands. Identify the measures necessary to insure irrigation water supply to the lands outside the study area which may remain agricultural.
- D. Determine total project cost for each drainage element.
- E. Resolve water quality, wildlife, and revegetation issues as addressed in the Community Plan EIR. What mitigation measures are required? If possible, resolve the environmental issues associated with the proposed designs for canals and pumping facilities and their

operation after consulting with the State Fish and Game Department, State Reclamation Board, Corps of Engineers, Sacramento County, etc. (Note: preparation of an environmental assessment document or special environmental surveys and studies, if required, shall be a separate task not a part of this study.)

- F. Develop drainage system access and maintenance criteria and suggested maintenance techniques and scheduling of maintenance activity. Include an analysis and recommendation concerning concrete lining the sides of canals. Review alternatives for the crossing of I-5 of major drainage facilities with Caltrans and City and R. D. 1000 staff and make recommendations. Discuss possible long term operation and maintenance problems and costs for these facilities.
- G. Evaluate the design and operation of the proposed storage/detention basin shown on the land use plan.
- H. Coordinate with the County of Sacramento, RD 1000, the Natomas Central Mutual Water Company and development community and others as required. The report prepared by Morton and Pitalo concerning the 2000 acre site adjacent to the airport must be addressed and incorporated into the overall study.
- I. Evaluate the possibility of "boils" forming in the canals during high water stages in the Sacramento River. Describe features to be incorporated into final design to properly safeguard against this eventuality if it is deemed to be a hazard.
- J. Address proposed pump station design including schematic plan and profile layout.
  - 1. Address energy-momentum considerations in the approach channel involved in the starting and stopping of pumps and propose methods to reduce the positive and negative surges from the large canals to the pump stations. What type of control system will be utilized?
  - 2. Will a forebay be necessary at the stations? What size forebay is required?
  - 3. Discuss the availability of an adequate power source and proposed backup sources of power for the stations to assure reliable operation.
  - 4. What kind and size of pumps should be utilized?



5. Should modular construction be considered?  
Recommend a plan.
  6. Discuss access and maintenance procedures and operations necessary at the pump stations together with anticipated costs.
  7. Identify necessary noise mitigation facilities that should be constructed, and phasing of construction.
- K. Evaluate the measures and costs necessary for providing continued drainage and irrigation service and access for agricultural lands.
- L. Evaluate and propose a division of maintenance responsibilities between Reclamation District 1000 and the City of Sacramento.
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- M. Identify necessary permits and agreements that will be required for drainage construction in logical sequence and approximate time lines for processing (including any required environmental documents).
- N. Evaluate project time lines required to begin construction including: design, right of way appraisal, negotiation and acquisition, environmental preparation, processing and approval, permit and agreement preparation, application and approval, payment of fees, contract bidding and award. Develop a critical path scheduling chart which illustrates the design tasks stated above.
- O. Address the need for, size requirements, and facilities to be included in maintenance yards to be located adjacent to the pump station sites. (Coordinate with Flood & Control and Sewer Division.)
- P. Develop proposed maintenance criteria which consider operational and environmental concerns. Analyze initial and annual costs on a life cycle basis. Determine areas of benefit of improvements and determine estimated per acre costs, including additional costs required because of staged construction.

Q. Project Management and Time Schedule

1. Identify project manager who will have overall project responsibilities including: design agreement and permit processing; setting up and holding necessary coordination meetings with various agencies and interested parties; environmental investigations and recommendations.
2. Identify public agencies for which it will be necessary to prepare and process permits and agreements (including maintenance agreements), or which must approve any necessary environmental documents.
3. Identify extent of existing utilities and necessary relocations. (Delineate on appropriate study plans and include cost estimates for relocating.)
4. Establish a detailed time schedule for the study which includes the above tasks and also included an outline of necessary coordination meetings with the City and other agencies/parties. Said schedule shall include all other tasks necessary for completing the project in an efficient manner.
5. Consultant attendance at public meetings will be compensated as an extra work item.

## Format of Report

The report shall include:

- A. Table of Contents
- B. Executive Summary
- C. Introduction and Background
- D. Discussion of environmental concerns and possible mitigation measures. Preparation and processing of an environmental document, if required, shall be a separate task not a part of this study.
- E. Detailed description, discussion, and outline of the various drainage improvements to be constructed including design criteria, description of improvements, etc. Major utilities, irrigation ditches, etc., that will require relocation must also be identified and discussed.
- F. Construction cost breakdown (including right of way, contingencies, and engineering) for the various drainage improvements must be developed. O&M costs for major facilities requiring annual maintenance shall be included.
- G. Maps of overall area, benefited areas, and project costs on an acreage and phased basis as appropriate.
- H. List of Figures, Tables and Exhibits shall be included as necessary.
- I. Exhibit requirements for the project shall be essentially based on use of USGS Quad Sheets for showing major drainage facilities enlarging to scale of one inch = 1,000 feet where appropriate. These maps shall be supplemented as necessary with limited field surveys to obtain spot elevations and topography in critical areas and to obtain miscellaneous cross sections and profiles. No larger scale mapping will be required for showing major drainage facilities except for pumping stations and special structures.

Maps showing existing property lines and owners shall be taken from available assessor's maps and recorded maps.

Existing large scale maps covering approximately 2,000 acres (general area of the stadium site) will be provided to the Engineer for his use.

- J. Summary of agencies that will require permits for the drainage work shall be provided by the engineer after discussion with the various public agencies having an interest in the project.